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ORIGINAL LECTURES.

THERAPEUTICS OF DIGITALIS.

*A Lecture,
delivered at the University of Pennsylvania,*

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GENTLEMEN: In our last lecture we considered the physiological action of the drug digitalis, and found that its chief action is upon the heart and the arterial system; that it stimulates the pneumogastric nerve, and thereby slows the heart; that it also acts directly upon the heart-muscle and strengthens it; and that it further affects the vascular system so as to produce contraction of the small vessels, partly by an action on the vaso-motor centre and partly by an influence directly upon the coats of the vessels themselves.

Allow me, as is common with lecturers on heart disease, to use the term "heart dilatation" to express the condition of the heart in which its cavities are not equally enlarged but the cells are weakened and the term "cardiac hypertrophy" to express that condition in which there is or is not dilatation with an increase of the cavity of the heart and an increase in the power of the heart wall.

That condition, then, of heart disease which is especially met by digitalis is endocarditis; and you will find the greatest triumphs achieved by the drug in those cases in which there is simple dilatation or weakening of the cardiac walls. Even when the weakness of the wall is due to a fatty or other degeneration, digitalis is often of the greatest service. There is a type of disease that was commonly seen during the war among soldiers, which is closely related to heart dilatation, viz., the so-called irritable heart. This condition of the heart is seen at times in civil practice. The symptoms which it produces consist of excessive cardiac palpitation upon slightest exertion; there is continual excitability of the heart, followed, usually, but not immediately accompanied, by organic change. The organic change sometimes takes the form of hypertrophy; more frequently the "irritable heart" ends in a weak heart.

Digitalis is especially useful in most cases of disease of the heart, not only by virtue of its strengthening power, but by virtue of the peculiar action which it exerts upon the pneumogastric nerve. The so-called irritable heart of the soldier is undoubtedly the outcome of pneumogastric depression, and is most effectively met by rest and the use of digitalis.

The opposite condition to dilatation, viz., hypertrophy, is, as you can well see, aggravated rather than relieved by digitalis. In hypertrophy there is excessive muscular development, and this excessive output of muscular force is increased by the use of digitalis. Here you require remedies to depress cardiac action. The number of cases of heart disease, however, in which the walls

of the heart alone are affected is comparatively few. In the great mass of cases we have valvular lesions, causing cardiac muscular lesions. It is especially in the treatment of cardiac valvular lesions that digitalis is of service.

Some persons entertain the idea that to have heart disease is to be immediately disabled. I was taught, however, by my experience with a patient very early in my practice, that cardiac disease may exist for years, the patient leading a happy and useful life. I allude to an old lady, who finally died under my care, who had been a nurse in the family of General Washington, who had been a patient of Rush, whose life had been rooted in the past century. Through all the decades, as far as I could trace her history back, she had had a severe organic disease of the mitral valves, and yet she lived to an age of somewhere in the eighties.

We are now brought directly face to face with a study of the method in which nature brings about a cure or relief in cases of cardiac valvular lesions. When the masses of coagula have altered, changed, and distorted the valve, nature has no power of repairing that valve. We have no power, medical or natural, of adding to the valve that is partially destroyed or of tearing down the valve that has been added to by the disease. All that nature can do is to increase the power of the structure. I do not know how many of you have done as I was accustomed to do in my youth when, early in the morning, I went out into the yard where the cattle were to be watered, and having an old, leaky pump, whose valves were forever dropping water, I labored to get the water up. It was necessary to make the strokes vigorously, and by and by, through the power of my arm, I overcame the loss of power in the valve. This is exactly what nature seeks to do in heart disease, viz., to increase the power of the cardiac structure until it makes up the loss from the destruction of valvular tissue. If the heart becomes so balanced that there is sufficient increase in the muscle to atone for the injury to the valve, then life goes on as usual. The difficulty, the danger, the death that is brought about finally, in most cases results from the fact that nature fails or is unable to bring about an exact compensatory hypertrophy; there is too little or too much of power in the muscle to atone exactly for the inequality in the valve; and thus, little by little, changes follow, because these two antagonistic forces are uneven. The object, therefore, in convalescence from endocarditis in every new case of heart disease is, by nursing, by rest, by proper feeding, by the aid of proper medicaments, if possible, to bring about an exact compensatory hypertrophy. And, therefore, practically, your effort is to build up heart structure; to add to, not to take away from, power. We use digitalis during the convalescence from endocarditis, to aid in bringing up and forming this compensatory hypertrophy. How it does this I shall show you a little more in detail when we come to study the therapeutics of digitalis.

The old valvular lesion is one, after all, which most

frequently claims the attention of the physician. In the treatment of the valvular lesion of the heart, the first thing to be done is to make your therapeutic application. The scientific diagnosis in regard to valvular heart lesion is important, but it is only important in aiding you to reach a conclusion in the therapeutic action. If I had heart disease, I would not care at all whether the physician was able to say which valve was or was not affected, provided only he was able to answer this question. Is the hypertrophy in that part compensatory, is it too little or is it too much—what, in other words, is the relation in the heart that is before us between the outcome of the valve, the output, and the force which is to meet that output?

You will remember that we have two kinds of hypertrophy in heart disease. We have what you may call absolute hypertrophy, a mere absolute gain of strength, when the heart is two or three times as strong as it ought to be. But that heart which is absolutely hypertrophied may be relatively dilated or weakened.

Suppose, for instance, we have a heart the power of which is "100" while the power in the muscle is "100". That heart is a normal, healthy heart, and the blood flows in regular cadence. Valvular disease comes, and this "100" increases to "500", because the leak in the valves has required five times the amount of force to make the blood flow regularly. This "100" may rise to "300", and the heart be three times as strong as it was when normal or before the disease came; and yet the power is not equal to the demand; and you have, under these circumstances, an absolute hypertrophy but a relative dilatation. You have a heart three times as strong as normal, but a heart that is fatally weakened in regard to the amount of work necessary for the comfort and the life of the individual. The therapeutic diagnosis to be made in any individual case, the important practical diagnosis, is not whether there is absolute hypertrophy, but whether there is relative hypertrophy or relative dilatation—whether the increase in the power of the heart is or is not proportionate with the increase of the work required. Now, how do we ascertain that? You are aided a little by valvular lesion, but, after all, not materially. When the heart fails you find that the venous system is full, that there is a tendency to dropsy, that the right side of the heart is distended; that the aortic system, in other words, is comparatively empty and the venous system comparatively full. When you find this condition, you know almost to a certainty that you have a case of relative dilatation or weakness of the heart. Hence in almost all cardiac dropsies digitalis is indicated.

Let us take the individual lesions of the heart, for a moment, and consider how digitalis acts. Take a simple case for our purpose, that of mitral regurgitation. There you have a heart in which, when the ventricle contracts, the blood, instead of rushing out into the aorta, is some of it forced back into the auricle; and thus the aorta gets only a portion of what is its due. The aorta being empty, the whole arterial system is empty, and everywhere, from all portions of the body, the cry comes for more blood. The heart attempts to respond; and by and by, from perpetual irritation, the heart becomes as it were angry; it loses the power of self-control. Now, instead of the 60 or 70 strong beats a minute that you

ought to have, you have a heart that is beating 120 or 130 times a minute, it may be—at all events far above the normal rate, and each beat is ineffectual. For a heart-beat to be effectual it must have a ventricle full of blood and be able to contract upon something and to throw that something into the aorta. Your little, continual, impatient beats mean continual emptiness all over the arterial system, continual cries for more blood, continual loss of potency; and so we have a weakened, cold circulation everywhere, and a circulation that grows worse and worse.

How does digitalis bring relief? It is not a rag with which you can stuff the lesion down. It is not a lever that you can put on the mitral valve. Digitalis does this: First, by virtue of its action on the inhibitory nerve and, to some extent, by virtue of its action on the heart muscle it quiets the heart. It makes the heart deaf to the impulses coming to it from all portions of the system; and, instead of 120 or 130 beats a minute, you have a pulse of 60 or 70 a minute; and during the long pauses the ventricle fills itself with blood. Now when it comes to contract, it finds that it has within its embrace a great mass of blood which can be squeezed out through the aorta. So that, in the first place, you have produced quiet in the heart, you have a heart filled with blood that may be expelled; and when the contraction comes it is a great, powerful contraction, in which has been gathered up a force that previously was wasted in many different contractions. More than this: you know very well that when you used the pump in order to atone for the leaking valve, you had to make the strokes very powerfully and quickly; and you know very well that there is friction in the small opening, which is greatly increased by the power behind the flood forcing the flood through. The aorta is wide and open and ready for blood; the little opening in the mitral valve is choked up with excrescences, is irregular and small: so that, when the powerful contraction comes, there is an immense increase of friction in the mitral valve with but little increase in the aorta and the blood chokes itself up, as it were, so that but very little blood gets up into the venous system.

You see, under these circumstances, how digitalis increases not only the amount of blood that goes out of the aorta, but increases the proportionate percentage of blood that goes out as compared with that which goes backward. I have hardly time to-day—in fact, I have not time in the hour allotted to me—to take up the individual cardiac valvular lesions and trace out the way in which digitalis does good in each individual lesion.

There is one class of valvular diseases in which, common opinion says, digitalis does harm, and that is, in aortic disease. The use of digitalis in diseases of the aortic valve is governed by the same laws which govern its use in diseases of the mitral valve. Whenever in diseases of the aortic valve the heart is weak, you use digitalis precisely as you use it in diseases of the mitral valve. But it so happens that, in cases of aortic disease, excessive hypertrophy is common, while it is very rare in cases of mitral disease. So that if you take at random a thousand cases of cardiac disease, you will find that digitalis suits a larger percentage of mitral disease cases than of cases of aortic disease. This is not because there is any difference in the application of the

remedy or in the rules governing it, but simply because aortic disease more frequently gives rise to excessive hypertrophy than does mitral disease.

Gentlemen, very extraordinary permanent results are sometimes seen in heart disease from the use of digitalis. I have seen a case, for instance, in which a laboring man, unable to work, whose condition in his cardiac indications was apparently hopeless, become able to work in a few days and go for some months without taking more digitalis. It would seem, therefore, in view of its effects in heart disease, that the drug does more than simply stimulate the heart, and that it ought to be classed as a cardiac tonic and food rather than a cardiac stimulant. It is very easy to see how digitalis, under these circumstances, does good. You know that when the aorta is filled and distended with blood coming from a powerful contraction, the circulation in the cardiac walls is especially affected. Now you have a heart, we will say, that is overworked from valvular disease, a heart that is unable to throw sufficient blood to feed the general system, a heart that is starving itself, because failure in circulation is felt in the heart wall more severely, even than in the periphery of the body. You have, therefore, a heart that is overworked and under-fed; and you know full well that when you are over-worked and under-fed, you undergo rapid exhaustion, and have need of change. I have no doubt that one cause of heart failure and valvular lesions is under-feeding of the heart wall with blood. Now, you restore that heart to a normal action temporarily by the use of digitalis, by the stimulation of digitalis, if you please; and, consequently, when the current rushes out through the aorta, there is a great mass of it to go into the veins and arteries to feed the walls. When the heart contracts with a spasm, it contracts with such force that it empties out all the juices from the muscles and makes a clear, open space for the blood to flow in and to feed the heart. And so the heart ceases from its overwork, has a rest from its excessive labor, and is also fed more liberally than it was before. The digitalis, in these cases, does good temporarily by restoring the balance of the circulation; permanently, by bringing rest and food to the heart itself.

But I believe myself that digitalis goes beyond this. The experiments of Gaskell have shown that the pneumogastric nerve is a trophic nerve of the heart; that during the period of inhibition there is not only rest from functional activity, but there is activity in structural change; that during the systole of the heart, in other words, the heart puts forth energy and destroys its own structure; that during diastole of the heart the heart not only rests from functional activity, but is engaged in building up its own structure. Systole is destructive to the heart; diastole is constructive to the heart. Now, therefore, when you have a long period of diastole, you have an increase in the structural activities of the heart. And so there comes to the heart not only cessation from worry, not only over-feeding instead of under-feeding, but also an intensely stimulated structural activity. Under these circumstances, is it wonderful that the effect of digitalis in cardiac disease is so often permanent?

You can see how, properly used, digitalis is a remedy of great value in the treatment of the formative phase, so to speak, of heart disease and in convalescence. It

regulates the heart's action, it causes the muscle to be well-fed, and it stimulates activity in that muscle. Its use, therefore, is of immense importance in building up activity in the heart structure, if there is any hope for the patient.

Let me now say a few words in regard to the use of digitalis in old cases of heart disease. In the cases of heart disease of which I have been speaking and which are not very severe, especially in the early stages, I would recommend ten drops of tincture of digitalis, three times a day. But there is a class of cases in which most wonderful therapeutic results have been attained by the inordinate use, so to speak, of digitalis. I remember being called upon by an old German doctor, who asked me to take care of a lady patient during his absence. The lady lived in Cherry Street, opposite the St. Paul burying-ground. When I visited her she was sitting at a window, leaning forward, and in that horrible agony of a protracted struggle for breath which attends the last stages of heart disease. After a few formal words of introduction to the patient, I asked the physician, "Have you given digitalis?" He replied that he had. I then inquired, "Have you given massive doses?" He answered, "No." I asked, "Are you and is she willing to take the risk?" He replied substantially that it would be better for the patient to be in the graveyard, to which he pointed, than to continue to suffer as she was then suffering. The lady assented to my proposition, and I began to administer to her doses of half a drachm of tincture of digitalis, three times a day. When the doctor came back, three weeks later, the lady herself came down to the door to greet him. In another case a banker from the West, who was at one of our hotels, had become suddenly worse with an aggravation of his cardiac disease, and had been at his hotel, four or five weeks, under the care of a homeopathist. I found that man sitting up, but with the most absolute characteristics of the disease that could be conceived of. He would cease breathing for a minute or so, and then, when apparently about to die, would suddenly rise up and spasmodically catch his breath. After a long pause he would again spring up, gasping for breath. I put that man on enormous doses of digitalis, and in two weeks he was able to go to his home in St. Louis.

Now, gentlemen, remember that each of those cases was an advanced stage of cardiac disease, in which life was a misery and death a thing to be hoped for. By the use of digitalis the patients were restored, for the time being, to the power of active life. But mark you the final result. The banker, one day, fell dead across the threshold of his bank; the old woman, early one morning, fell dead upon the stall of the market where she was making her purchase.

Now, those people were not killed by digitalis. Digitalis had not produced in those people a sudden cardiac arrest. But what digitalis had done to those hearts was this: it had steadied them, stimulated them, built them up, brought them into that condition in which they were able to utilize the last grain of force that was remaining in the storehouse of their power, and to make use of that force until, at last, it was expended. When the last grain was gone, the heart stopped. Life had been prolonged, life had been made comfortable; death, when it came, came as the lightning shock.

Therefore, whenever you have these old cases of heart disease, make up your minds that you are justified in using these enormous doses of digitalis; but remember what the probable end will be, and take care that you warn the patient and warn the friends of the patient, so that they may know what is to be expected.

There is a condition of the arterial system allied with or often coexistent with the aortic disease in which, not many years since, surgeons used digitalis. I refer to aneurism. But you see at once that digitalis is a most dangerous remedy in the treatment of aneurism. The only reason why the surgeon has failed to do harm in the use of digitalis in aneurism is that he gave it in such small doses that the drug had no effect. You take an aortic arch partially torn asunder, weakened by disease and ready to burst, and you send through that aortic arch not the little, feeble stream of failing heart-power, but the great, mighty current produced under digitalis. This force is propelled forward, and there is also a lateral force exerted of necessity, and especially is that lateral force exerted when there comes the reflex wave driven back by heart-pressure on the aortic valve, and with such force as to rebound. There is great danger that, under these circumstances, the wall will give way. The reason that that has not oftener happened is because the digitalis was given in such small doses that it probably had no effect. This is not mere theory. Some years ago, when I was a physician in Blockley Hospital, there came a man into a ward in a condition of collapse, who had been picked up in the street in a dying condition, with a temperature far below normal and a pulse which was not perceptible. I said, "I do not know what is the matter with this man; give him digitalis and other stimulants." Digitalis was administered, and I saw the man two days afterward. As I stood by his bedside I felt the great, huge digitalis wave coming up under my finger, and I said, "Give this man no more digitalis," as his pulse showed unquestionably the effect of it. Suddenly the man, with a struggle, braced himself in the bed and threw himself forward. A great rush of blood came out of his mouth and he fell back—he was dead. I said at once to the resident physician, "Do you know what we have done? That man had internal aneurism, and we have burst it with digitalis." There was the aortic artery rent as though with human fingers; the digitalis had seized upon it and torn it asunder.

In the hurry of preparation I have overlooked one or two points which I should have mentioned, and I will now give you these a little out of order, viz., as to the failure of digitalis to do good in certain cases of heart disease. First, let me say one other word in regard to the therapeutic diagnosis. I have told you how to make it. If in some cases, when exercising the utmost care, you are doubtful whether a heart is weak, whether it is dilated or whether it is strong, then you make a therapeutic test. If digitalis renders that heart more irritable and increases the distress of the patient, you know that the heart is hypertrophied. This applies also to some cases of valvular lesions, where you suspect that you have made a mistake in your therapeutic diagnosis and that the case is really one in which there is relative hypertrophy, but not, as you had thought, relative dilatation. But there are cases frequently met with in which the

use of digitalis seems to be indicated, and in which it increases greatly the distress of the patient, but in which you are sure there is relative dilatation or weakness of the heart of the patient. These are cases of mitral insufficiency. Where you have a miserable cardiac dropsy and a failure everywhere in arterial circulation, give digitalis and observe the results you get from it.

In other words, digitalis seems to stimulate the ventricles more powerfully than it stimulates the auricles. Then, again, remember that the ventricle is always over-powerful when compared with the auricle in the heart. When you have a ventricular beat, you have a strong contraction, throwing the blood back upon the auricle. If, under these circumstances, you have an auricle which is very weak, and you give digitalis, the ventricle becomes excessively powerful; and when it drives the blood back upon that auricle, it drives it back with such power that the auricle is not able to react, and, instead of reacting against the ventricle, the auricle yields and the valve stretches and becomes weak. Then comes the cardiac result, which is not the outcome of a ventricular failure, but the outcome of a ventricular strain. It is under these circumstances that you have such a period of ventricular strain that the auricle gives way and you have distress.

One word in regard to the use of digitalis in cases of cardiac dropsy. You cannot rely upon digitalis as a direct stimulant to the urinary or secretive organs. When you have failure of urinary secretion, it is because there is failure of circulation in the kidneys. Under these circumstances, of course, by regulating the blood circulation the digitalis will increase the urinary secretions. The great value which it has in cardiac dropsy is by restoring everywhere the balance of the circulation.

ORIGINAL ARTICLES.

A CASE OF GASTRO-ENTEROSTOMY AFTER SENN'S METHOD FOR CANCEROUS OBSTRUCTION OF THE PYLORUS.¹

By M. STAMM, M.D.,
OF FREMONT, OHIO.

MRS. M., aged sixty-three years, had felt some pain in the left epigastric region since the beginning of March, 1889. On July 6th, she first came to my office and told me that for the past three weeks she had noticed a hard tumor in the region of her stomach, complaining at the same time of loss of appetite, acid eructations, loss of flesh and strength. I was struck by her appearance, as in February when I had last seen her she was a picture of perfect health and weighed about 197 pounds. Now she apparently did not weigh more than 140 pounds, and had a decided cachectic appearance. On examination, a solid nodular tumor was discovered in the epigastric region midway between the ensiform cartilage and umbilicus. The area of dulness was about the size of two hands; tumor did not appear to be movable. On July 9th, I examined her again

¹ Read before the Northwestern Ohio Medical Association at Toledo, Ohio, December 12, 1889.

with Dr. Gessner, of Fremont. After inflation of the stomach with carbonic acid gas, the tympanitic sound reached to about two inches below the umbilicus; the tumor was not displaced, the nodules seemed to separate slightly, some taking a course along the lesser curvature. Dulness over the liver reached about two inches below the ribs. After having emptied the stomach of gas with the tube, I injected nearly three quarts of warm water into the bowels, following Naunyn's advice. The tumor disappeared from touch, but the dulness remained the same. Consequently we arrived at the diagnosis of carcinoma of the pylorus, including the lesser curvature. Patient insisted upon knowing her real condition, which we could not very well hide from her, as she had already independently formed similar conclusions. She then said she knew what the result would be, as there was no hope for a cure. As a mere consolation, we told her that in recent years surgery had taken hold of such cases and that a few had lived for several years in comfort after operation. She would not hear of an operation, especially as I told her that it was generally very dangerous and could not be lightly advised by a conscientious physician—in fact, should only be undertaken at the urgent request of the patient. At my subsequent visits she repeatedly and spontaneously referred to an operation as a thing she would never consent to, and in return I always told her that I had no desire to advise such an interference, knowing very well that on account of the immobility of the tumor a resection of the pylorus was out of question. Not a little surprised was I, therefore, when, in August, she sent me word that she was now determined to undergo an operation. In vain I explained to her and her husband the impossibility of a complete removal of the growth, that any operation would at best only give her temporary relief, and probably that but for a short time. But as symptoms of pyloric obstruction had set in, she was bound to get relief at any cost.

August 22d was decided upon for the operation. I therefore washed out her stomach on August 20th, and again on the evening previous to the operation. At her request, she was allowed to take half a cupful of black coffee about 4 o'clock in the morning, before the operation, with the intention of washing out her stomach again about six hours later. She, however, when that time came, objected so strenuously to such a step, that she was ready to give up the operation rather than submit to another lavage.

My intention was to perform either gastro-enterostomy or Bernay's operation, which latter consists in gastrotomy and scooping out the cancerous mass. Bernay's two cases which he reported in the *Annals of Surgery*, December, 1887, certainly encourage such a procedure in suitable cases, but, as will be seen, my case presented too extensive an infiltration to admit of any such measures.

The incision was made in the median line, where the stomach presented itself readily. The cancer was located in the lesser curvature, and the pylorus formed one rigid mass, being adherent to liver and pancreas. A number of nodules were also found

in the liver and some in the anterior wall of the stomach. I introduced my right hand into the abdominal cavity down to the pelvis and caught up what I thought was the upper part of the ileum. Nothnagel's test, which consists in placing a grain of salt on the serous surface of the bowels to elicit ascending peristalsis, was a complete failure in my case. Consequently I followed the coil of intestine, which I held in my fingers, up for some distance until I felt the mesentery become shorter and selected the corresponding part for the opening. As a ligature for the bowels, to prevent any escape of their contents, I took two small rubber bands, passed them with the eyed end of a probe through the mesentery about four inches apart, and, after having pressed out the contents of the intervening coil, I fastened the bands with Pean's haemostatic forceps. An incision about one and a quarter inches in length was then made upon the convex surface of the intestine, and the decalcified bone plate introduced. After having transfixed the bowel by both lateral sutures, I handed it over to one assistant, and made an incision into the stomach about the middle of the greater curvature and one inch above the insertion of the omentum. The black coffee which the patient took about seven hours before was found in undiminished quantity in the stomach and caused some delay in the operation, as it had to be emptied by means of the syringe. For the stomach I used an undecalcified bone plate, as Senn has recommended. The threads were then tied and the plates adjusted. As an uneasy feeling crept over me at the thought of returning the sutured parts into the abdominal cavity, I introduced about fifteen Lembert sutures for the purpose of reinforcement. A second case, no doubt, will make me less apprehensive, so that I may restrict myself only to a few Lembert sutures, but I think every novice in such a matter will undoubtedly share the feelings I had at the time.

Patient rallied well from the operation; not the slightest sign of collapse was shown, although she regurgitated a few mouthfuls of black coffee about four times during the first twenty-four hours. The next morning I succeeded in getting her consent to have her stomach washed out again, which was done without retching, as a few minutes before I had brushed out her pharynx with a ten per cent. solution of cocaine. This gave her complete relief, and at each of my subsequent visits she expressed herself as feeling surprisingly well. Her temperature never exceeded 100°. On the third day her bowels moved slightly, after an enema. Enemas of brandy and peptonized milk, also the yolk of an egg, were given to her the first three days; afterward she took food by the mouth. Her bowels moved every morning for five weeks. Her condition was really very satisfactory for four weeks, although her tumor kept on growing very rapidly. At the end of four weeks she began to vomit occasionally, mostly mucus, but still she took nourishment up to the end of the fifth week. After that time she lived principally on wine and water. On October 4th she died from progressive marasmus, without the least suffering or distress.

Post-mortem, on October 5th, revealed stomach,

liver and pancreas almost totally degenerated. The anastomosed parts were slightly adherent to the abdominal incision; the artificial opening would admit the index finger very readily. The portion of the bowel which I had selected for anastomosis was the upper part of the ileum. The bone plate was found lying loose in the stomach, the decalcified plate in the bowels was no doubt absorbed, as it could not be found, and never had passed with the stools. Gall bladder contained an immense gall-stone, which, however, had not caused any symptoms.

Now we may naturally ask the question, Is gastro-enterostomy a justifiable operation for cancer of the pylorus? Is it worth while to undertake an operation of such magnitude in a case where a cure is absolutely out of the question? I might premise in saying that, in such an instance, the opinion of the highest medical authority is of little weight unless supported by clinical facts. In order to decide this question, we must first look at the rate of mortality immediately connected with the operation. Von Hacker's report from the Vienna clinic, in 1886, was certainly not very encouraging. Of 8 cases of gastro-enterostomy, after Woelfler's method, 5 died promptly, and the 3 cases which recovered enjoyed only a short improvement. But the cause of this high mortality could be easily explained by the fact that in several cases an attempt at total resection of the pylorus had preceded the gastro-enterostomy, and only when they found the adhesions too extensive did they resort to Woelfler's method. Satzmann also published a table of 23 cases of gastro-enterostomy,¹ 18 cases for cancer and 5 cases for cicatricial constriction of the pylorus. Of these 18 cases of cancer 12 died, while those which recovered lived between one and four months. It is no surprise, therefore, that these two authors did not take kindly to the operation. A much more favorable report is published by Rockwitz,² from the Strassburg Clinic. One case was operated upon by Fischer, on May 13, 1882. The woman, about thirty-one years old, gained seven pounds during the first four weeks, was able to do some light housework, and died one year and two months after operation. He further reports seven cases from Luecke's clinic. Of this number, 1 died about eighteen days after the operation from inanition and pneumonia. In this case the mesentery of the ileum at the seat of anastomosis produced a partial constriction of the transverse colon. The other cases lived from three months to nearly one year, greatly relieved of the distressing symptoms. Dr. Angerer, of Munich, reported 6 cases of gastro-enterostomy at the Congress of German Surgeons last spring. One case lived for months, and was able to work as a mason, though he frequently suffered from colicky pains, 2 cases died in a few

weeks, and 3 a few days after the operation. Lauenstein, of Hamburg, at the same time added 9 cases, of which he lost 2 in immediate consequence of the operation, the remainder living for a longer time free from all unpleasant symptoms. Dr. Ranshoff, of Cincinnati, was kind enough to send me an extract from the London *Lancet*, vol. ii., 1889, p. 986, containing the report of a case operated on by Mr. Herbert Page, and read at the meeting of the Royal Medical and Chirurgical Society, May 14, 1889. The patient, a man aged forty-eight years, had a malignant pyloric obstruction for several months, and was operated on in St. Mary's Hospital in December, 1887, after Woelfler's method. He was much relieved by the operation, and lived for seventy-two days in comparative comfort, but did not gain in weight, which he thinks was due to the fact revealed at the autopsy that the lower portion of the ilium was used for the anastomosis. He appended a table of 38 cases furnished by different operators, 2 of which were subjected to both pylorectomy and gastro-enterostomy at the same time. Of the 36 cases of gastro-enterostomy alone, 15 were fatal directly or indirectly as the result of the operation. But he noticed a steady decline in the rate of mortality. In the first 18 cases there were 10 deaths, while in the second 18 there were 5 only. Czerny reports 11 cases from his own clinic, 5 operations after Woelfler's, and 6 after von Hacker's method, with 7 deaths. The first case in this country was the one of Ranshoff, operated on in 1884, after Woelfler's method. Patient died eight hours after operation from collapse. Another case operated on about two years ago by Lange, of New York, died thirty-one days after operation from perforation of the posterior wall of the stomach at the side of the carcinomatous ulcer. Meyer, of New York, reported a case¹ where he followed Woelfler's method with continuous catgut suture. Death followed five days after operation from ileus, which Meyer ascribes to the fact that the anastomosed portion was selected too far away from the pylorus.

In my opinion, the cases from the Strassburg clinic, and those where the advice of Rockwitz has been followed, are alone of practical value in fixing the rate of mortality for operations after Woelfler's method. Rockwitz has pointed out the necessity of confining the operation simply to those cases which are not too much reduced in strength, and in cases where the condition leaves one undecided whether to make a radical excision or resort to gastro-enterostomy, to cast the die in favor of the latter operation. The secret of Luecke's and Fischer's success undoubtedly centres in that fact. Luecke's operations lasted on an average one hour and a half, and they were generally followed by considerable

¹ Centralblatt f. Chirurgie, No. 33, 1886.

² Deutsche Zeitschrift f. Chirurgie, Bd. xxv., Heft 3.

¹ New York Medical Journal, June 22, 1889.

collapse. How much better able must we be now to attain success since that indefatigable investigator and fruitful genius, Dr. Senn, has given us a method so simple and rapid of execution, that collapse and immediate death after the operation will almost reflect upon the skill and good sense of the surgeon. The use of bone plates has made gastro-enterostomy in practice a very safe method. Dr. Senn, in a recent letter to me, reports 7 cases of his own, of which number only 1 died shortly after the operation. This case really represented the most extreme limit of operative venture, as the patient was already at death's door. It was the first case the doctor had operated on, and very probably in the future such cases will be allowed to die a natural death. The rest of the cases lived for several months, free from symptoms of pyloric obstruction. Dr. Ransohoff, in a letter, gave me a history of his case which was operated on last spring after Senn's method. For three weeks everything was in the best condition, but after that time the symptoms returned, and patient died one month after operation. At the necropsy the opening was found too small to substitute the normal pylorus, and the operator ascribes this to the bone plates. He thinks he will use Abbe's cat-gut rings in the future. So we have 9 cases after Senn's method from three operators, with but 1 death as the immediate result of the operation, and we may assume that in the future the mortality will be reduced to almost *nil*.

The second question, "Is it worth while to undertake an operation of such magnitude in a case where a cure is absolutely out of the question?" is certainly not out of order here. It seems to be a settled fact amongst physicians, that in cases of pyloric obstruction they have hitherto been well-nigh powerless. And, I think, most physicians who have been confronted with such cases, and who have a heart for human suffering, would have been glad to bring relief even at some cost; indeed, I think most patients in this terrible condition will drive their medical attendants to desperate means. Does this operation really give the desired relief? In answer to these questions I can only quote the opinions of those surgeons who have operated. Rockwitz says:

"I have never seen a happier and more grateful set of patients than the class affected with pyloric obstruction as, after a complaint long and full of torture, they see themselves suddenly relieved from pain and other disturbances, and gain renewed vigor and courage to live."

Senn, in his work on intestinal surgery, says:

"These cases have satisfied me that gastro-enterostomy in cases of inoperable carcinomatous stenosis of the stomach is a safe and justifiable operation, and should be more frequently resorted to, as it is the only resource which promises substantial relief, prolongs life, and in-

fuses new hope into a class of patients otherwise doomed to a certain, speedy death."

In his letters addressed to me he seems to be even more confirmed in the advisability to operate. Dr. Ransohoff says:

"In cases of carcinoma where a radical operation (pylorectomy) is not possible, I appreciate gastro-enterostomy very highly. In cases of cicatricial stenosis or round ulcer, I would prefer excision or the pyloro-plastic operations (Heinecke-Mikulicz)."

Mr. Herbert Page's opinion is that gastro-enterostomy is worthy of more attention than it has hitherto had in England. In properly selected cases it appeared to him to be an operation distinctly justifiable, and one to be recommended, for it was capable of bringing relief from the distressing symptoms incidental to pyloric obstruction, and was thereby the means, in all probability, of prolonging life.

If one case justifies me in forming an opinion, I can say that the operation in my case prolonged life probably from three to four weeks, that for nearly five weeks the patient was cheerful, and not even without hopes. From the time of operation up to her death she was free from pain and distress of any kind. Considering the extent of cancerous infiltration, she really did as well as could be expected. Moreover, shortly before the operation, she said her only wish was to live long enough to see her daughter safely through her approaching confinement, and that she would like to see the baby; her wish was gratified in its full measure. I, therefore, am fully in favor of this operation, provided we explain to the family the exact condition, and do not promise more than we can realize.

Another question arises, "Should gastro-enterostomy be performed in every case of carcinoma of the pylorus, or should some cases be reserved for pylorectomy?" I think most surgeons now agree to advise excision of the pylorus only in cases where the tumor is movable and the adhesions can easily be separated; in doubtful cases gastro-enterostomy will prove to be the safest method. In regard to operations for the relief of cicatricial stenosis or round ulcer of the pylorus, we suffer from an *embarras de richesse*. Some surgeons are especially partial to Loreta's operation, others to radical excision, some to Heinecke-Mikulicz's method, others again to gastro-enterostomy. All of them have been tried, some with success and some with failures. I think Loreta's operation may be indicated in cases of tonic contraction of the sphincter, or slight, resistless cicatricial stricture. Excision, in my opinion, should be condemned, as to-day we have safer methods. Kroenlein's case, at least, should serve as a warning.¹ He operated for traumatic

cicatricial stenosis, and found the pylorus adherent to the liver. After making the excision, he found that the transverse cut of the duodenum would only admit a fine probe; it was impossible to extend the resection further down; Kroenlein, therefore, closed the duodenal end with a number of sutures, and inserted the gastric end into a coil of the jejunum. Death followed the next day. As to the plastic operation of Heinecke-Mikulicz, Fritzsche¹ says that Heinecke's operation may at times become so formidable and dangerous that it certainly would be better to replace it by gastro-enterostomy. And, indeed, the latter operation has so far, in the above-mentioned conditions, always been safer, and of more lasting success.

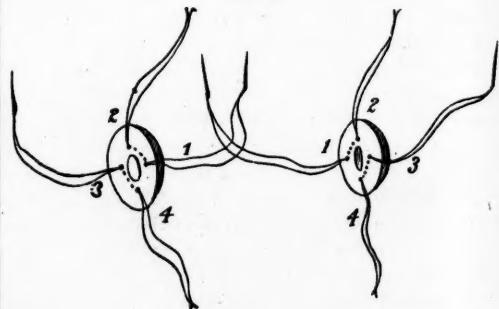
Gastro-enterostomy may also have its use in cancer of the pancreas, where the tumor presses upon the pylorus or duodenum. I saw such a case about six years ago, where the situation of the tumor and the condition of the stools led me to the diagnosis of cancer of the pancreas. The patient suffered terribly for months from obstruction of the pylorus, and, post-mortem, I found that the stenosis was caused by pressure of the pancreatic tumor and by some adhesions. Another reason speaks in favor of operating in cases where a tumor can be felt in the region of the pylorus, causing symptoms of obstruction. I know and have read of cases where a diagnosis of pyloric cancer was made, and a post-mortem revealed a tumor caused by gall-stones. Such cases are certainly very mortifying to the physician, the more so as they can be readily, and with a high degree of safety, relieved by an operation.

A few words might yet be added in regard to the methods we adopt to arrive at a diagnosis of cancer. I think the inflation of the stomach with gas should never be omitted. In my case it demonstrated the immobility of the tumor and the separation of the nodules, outlining at the same time the course which some took along the lesser curvature, thereby making the diagnosis somewhat positive. The injection of water into the bowels is also a very valuable aid in the diagnosis of abdominal tumors, and it assists us especially in determining whether they belong to the stomach, transverse colon, gall-bladder, or omentum. The examination of the stomach as to the presence of acid or its absence may be of service in some cases, but it should not be forgotten that hyperacidity has been observed in a few cases of gastric cancer.

We may now turn to the technique of the operation and to the different points which are of especial value in contributing to the success, immediate or remote, of the operation. Some surgeons think they derive some advantage in regard to the prevention of collapse from the way they use the anæ-

sthetics. They recommend chloroform up to the stage of insensibility, and then to continue the narcosis with ether. I have anæsthetized in that manner for three years—since Kochler recommended it so highly—with increasing satisfaction. I think most operators make the incision in the median line, and from appearances it will hold its place in the future. In regard to the manner of effecting the anastomosis, I think Senn's bone plates will be mostly employed. Ransohoff's dissatisfaction with them can be remedied by making the opening larger and by drilling the suture holes some little distance from the central opening. I must confess I would have a slight hesitancy in using catgut rings for the stomach, for fear they might be too rapidly absorbed. But, again, I do not think it necessary to use undecalcified bone plates for the gastric portion, as in my case it was found nearly intact in the stomach after forty-five days. I have of late prepared my plates from the lower angle of the shoulder-blade of young cattle (a heifer, two years old). They can be easily cut with the knife and are ready for use in half an hour, having kept them for that length of time in absolute alcohol. To prevent them from becoming distorted by warping, they should be compressed between blotting-paper. I have also simplified the manner of passing the threads through the plates. Senn's description on that point has never been clear to me, and I have heard others express the same idea, although all his writings are well appreciated for their terseness and lucidity. I

FIG. 1.

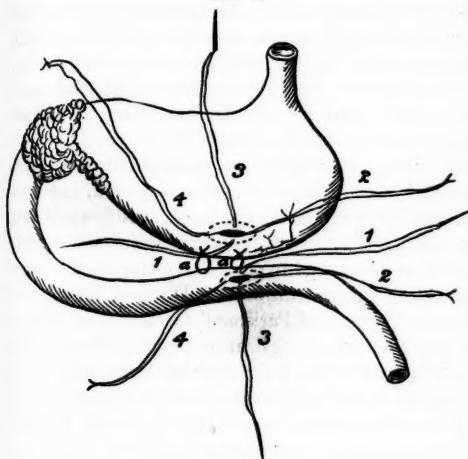


could never see why "the threads should be fastened to the surface of the plate by another thread passing through the perforations in the shape of a loop and fastened at the back." In my case I determined to follow what, in my opinion, seemed to be the simplest way, and which may be easily understood from the accompanying illustration (Fig. 1). For the plate in the stomach the thread is introduced at 2, and comes out at 1—that is, at the right side of the plate. For the bowel it is also introduced at 2, and comes out at 1, but at the left side of the plate. This is done so that the needles, after having trans-

¹ Centralblatt f. Chirurgie, No. 2, 1889.

fixed the bowel, will indicate the threads which should be tied first. After having tied 1, a pull on 2 will bring the plates with the wall of the stomach and bowels together; then tie at 2. Nos. 3 and 4 are then tied in their respective order. To prevent further confusion, it might be well to use black thread for 1 and 2 and white thread for 3 and 4. Before tying the threads, however, it is well to introduce a few Lembert sutures at the lower side, at the point of union of stomach and intestine (Fig. 2, *a a*).

FIG. 2.



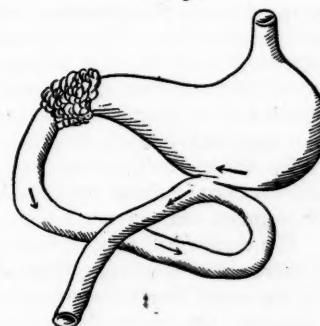
In my case it was neglected, and prolapse of the mucous membrane necessitated two sutures, which were difficult to introduce after the parts were united. It is also well to puncture the serous coats of stomach and bowel overlying the plates, in order to promote rapid adhesion. I further think that a few reinforcement sutures (Lembert's) will put the mind more at ease in regard to perfect union.

The most important question which confronts us is the selection of the proper portion of the intestine for the anastomosis. If you read the report of some operators, it would seem to be an easy matter; others, again, have had considerable trouble in finding it, and they advise simply to go down into the pelvis and take hold of any loop of the smaller intestine that may present itself. But we have a sufficient number of cases on record to make us cautious in selecting the first presenting coil for anastomosis. We have seen in Page's case that nutrition is not carried on properly if we select the lower part of the ileum.

Senn had also some kinking and the formation of a spur in one of his cases which he ascribes to the great length of the intestinal part between the stomach and the new opening, and he recommends to search for the duodenal or upper jejunal portion of the bowels. It should, therefore be our specia-

aim to look for such parts, which, however, is not always such an easy matter as some make it to be. Nothnagel's test, which has been pressed into service very often, proves a failure. Courvoisier's and von Hacker's methods, cutting through the omentum and transverse mesocolon in order to stitch the duodenal-jejunal flexure to the posterior wall of the stomach, will probably not find many imitators, although it took Jesse only thirty minutes to perform it on the dog. The method which at the present commends itself to our special favor is the one of Hahn. With the index finger and thumb of the right hand he searches for that portion of the pancreas which lies over the spinal column, and then takes hold of the coil which directly passes over to the left side. If it does not follow our hand on pulling we have the beginning of the jejunum; passing along this for about twelve to fourteen inches we have the right spot then for anastomosis. Rockwitz thinks it of great importance to promote peristalsis right from the start. In the normal condition he finds it to have a continuous course from the stomach into the bowels, whereas, when we anastomose the parts as it is generally done, the peristalsis of the stomach starts from left to right and that of the bowels from right to left. He therefore advises to attach the bowel in such a way that the efferent coil is to the right and the afferent one to the left. (Fig. 3.) But as

FIG. 3.



far as I could see from my own case and from the cases reported, I think there is no necessity for such a procedure. Should vomiting or symptoms of ileus arise, lavage of the stomach must never be omitted.

REMARKS UPON EMPYEMA.¹

BY MARY PUTNAM JACOBI, M.D.,
OF NEW YORK.

I DO not propose to enter into an exhaustive statistical discussion in regard to empyema or its treatment. This ground was largely, though not completely, cov-

¹ Read before the New York Academy of Medicine, Section on Pediatrics, November, 1889.

ered in a discussion held at the New York Academy of Medicine, in the winter of 1887, in which several physicians and surgeons took part. I may add that this discussion yielded more positive and useful conclusions in regard to the treatment of empyema than were reached by the discussion of the International Congress at London, in 1881. In six years, a most substantial progress had been effected.

The physiological problems involved in empyema have been discussed theoretically and experimentally, as recently as last September, at the first meeting of the American Pædiatric Society, held in Washington. This discussion was sustained by Drs. O'Dwyer and Northrup, and the President of the Society, all from this city.

It might easily seem, therefore, that nothing remained at present to be said upon the subject. Nevertheless, as various considerations have suggested themselves to me during observations of the case I am about to relate, I take the liberty of laying them before the profession.

A little boy, four years of age, was brought to my office in September, with a history of five weeks' febrile sickness, which had been considered by one physician to be a malarial fever; by another, typhoid. For some time the fever had been of a hectic type, coming on only in the afternoon. On the occasion of the first visit, which was in the morning, the temperature was normal. The child was excessively pale, with a suggestion of edema in the face, but not elsewhere. The respiration was not accelerated, and cough had been so slight as not to be mentioned by the mother until after I had inquired concerning it. Inspection of the chest, however, at once suggested thoracic trouble, for the anterior portion was markedly arched forward, the arching being equally prominent over the left side and over the sternum, and not much less over the right side. The mother had noticed that the chest was—as she expressed it—swollen. There was some dilatation of the veins over the sternum. On the left side, absolute percussion dulness extended from the second rib over the whole anterior region of the chest and reached the right border of the sternum. Above this zone of absolute dulness, a zone of relative dulness extended to the apex. Posteriorly, dulness extended from the spine of the scapula to the base of the lung. Over the region of absolute dulness, breath sounds were entirely absent. There was no tubular breathing. From the age and fretfulness of the child, it was impossible to obtain whispering pectoriloquy—which is said to be present in serous effusion, absent in empyema, and to constitute a valuable means of diagnosis between them. Above the region of absolute dulness, on the left side, both before and behind, existed tubular breathing; right lung was

normal. The apex of the heart pulsated in the epigastrium.

I regret that cytometer measurements of the chest were not made at this time. Nor was it noticed whether the liver was displaced, through compression and compensatory longitudinal enlargement of the right lung.

The assemblage of signs and symptoms just enumerated sufficed to justify an almost positive diagnosis of a purulent effusion in the left pleura, sufficiently abundant to displace the mediastinum considerably to the right side. An exploratory aspiration was deferred until the moment for operation, which was appointed for the afternoon of the same day. At this time the hypodermic needle, inserted painlessly after previous application of ice and salt, withdrew a syringeful of pus.

In saying that anterior mediastinum was displaced, I have used the current expression, but have not used it in regard to the heart, which was found beating in the epigastrium, and which would usually be said to be pushed over. According to the arguments and demonstrations of Douglas Powell,¹ of London, Peyrot,² of Paris, and Garland,³ of Boston, the displacement of the heart in pleural effusion is not due to pressure of the fluid on the diseased side, but to aspiration of the lung on the sound side of the chest. "The mediastinum," observed Dr. Powell in 1869, "is poised by the contending elasticities of the two lungs." The lungs exercise a traction power on the mediastinum, and also on the thoracic walls. The latter have been shown by an experiment of Dr. Salter's, repeated by Dr. Powell, to move outward about $\frac{1}{16}$ of an inch when air was admitted into the pleural cavity after death. This shows that during life, and while the lungs were expanded, they were habitually drawing the thoracic walls inward, by virtue of their elasticity. When the lungs collapsed, by the admission of air into the pleura, this traction ceased, and the thoracic walls moved outward to an extent corresponding to the previous retraction. The same degree of traction must necessarily be exerted on all parts of the pleural cavity, hence upon the mediastinal walls as well as on the thoracic. But as both lungs exercise the same pressure, each, normally, neutralizes the influence of the other, and the heart remains poised or suspended from the attachments of its great vessels, between two equal opposing forces.

If, now, the elastic traction of one lung diminishes, the power of the other lung is proportionately increased, and the mediastinum, with the heart contained in it, is accordingly drawn to that side.

Dr. Powell points out that it is only in this way

¹ British Medical Journal, 1869.

² Archives Gén. de Méd., 1876.

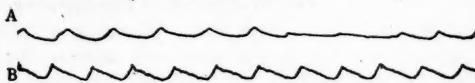
³ Boston Med. and Surg. Journ., 1878, and monograph.

that we can explain the displacement of the heart in the presence of a very moderate degree of effusion. An important corollary to the same proposition is, that cardiac displacement is not to be held to indicate a very large amount of effusion. On the contrary, it is one of the earliest symptoms, and observable while the effusion is yet quite small.

Dr. Garland, in his most ingenious monograph on Pneumono-dynamics,¹ quotes Skoda as expressing the same opinion on the cause of cardiac displacement. Nevertheless, it is unquestionable that the majority of writers continue to speak of the displacement of the heart by pressure of the effusion.

It is easy to verify by experiment Dr. Powell's statement—that cardiac displacement occurs with very small effusions, and soon after they are poured out. Indeed, in the experiment, where the effusion is necessarily sudden, the displacement is equally sudden. Thus, in an etherized dog, having ascertained that the cardiac apex was in its normal position, I injected—through a glass canula, fitting airtight—seventy-five cubic centimetres of warm water into the left pleural cavity at the anterior axillary line, and in the seventh intercostal space. Three minutes later the heart was found to be visibly and forcibly pulsating at the right of the sternum. A respiratory tracing taken immediately, with a tambour placed over the right side of the chest, shows a great amplification of the respiratory excursion, both in inspiration and expiration.

Tracing No. 1 contains (A) a normal tracing taken before any operation, and (B) a tracing taken immediately after plunging one arm of a fine glass T-tube into the left pleural cavity.



In this experiment the tissues were incised down to the internal intercostal muscles and the glass tube plunged into the pleura. The facility with which this can be done shows the rapidity with which the lung retracts with its visceral pleura, so that the virtual cavity is instantaneously converted into an actual one. Were not this the case, it would be almost impossible to open the pleura without wounding the lung. The following tracing shows

the effect on respiration of opening the pleura in the way described—the inspiration on the uninjured side becomes more ample, as is seen in tracing No. 3.



The fourth tracing, taken after injection of seventy-five centimetres of warm water, shows that this amplitude is still further increased.



As Dr. Douglas Powell remarks, the heart is so movable that its displacements may serve as a most delicate and accurate measure of any perturbation in the normal intra-thoracic equilibrium of forces—that is, of balancing tractions. It is interesting to notice that while a diminution in the elastic traction of the lung, which coincides with a pleural effusion, allows the heart to be displaced—*i. e.*, drawn over to the opposite side—diminution of elasticity due to solidification and diminution of size, as when lung tissue collapses over an empty cavern, is followed by displacement of the heart toward the affected side, so that marked lateral and upward displacement of the heart is an important sign of contraction of pulmonary caverns, and, to a considerable extent, measures their rate of progress to healing. But in this case the heart follows the negative pressure determined by the potential vacuum which exists, when the lung tissue tends to retract from the thoracic wall. When there is a pleural effusion there is no potential vacuum, for the fluid completely fills all the space left by the retracting lung, and the amount of fluid and amount of pulmonary retraction are necessarily exactly proportioned to each other. It is only in this sense that the fluid can be said to favor directly the cardiac displacement. Its principal effect is indirect, and exerted through the lung, which, in presence of the fluid, loses a portion of its power of elastic traction.

This last remark brings me to another very interesting and much debated problem of pleural effusions, namely, the precise effect exercised on the lung by the fluid in the pleura.

The same line of thought which leads to the view that the heart is displaced by pressure, sustains the current theory that the lung is "compressed" by the effused fluid. Indeed this theory is habitually taken as a matter of course, and as not needing discussion. Nevertheless, as soon as we begin to reflect on the nature of the lungs, and of the forces which maintain them expanded in the thoracic cavity, it seems to me remarkable that the true view of the case should have remained so long undiscovered. The first demonstration of this view that I have read, was given by Dr. Garland, of Boston, in 1878, and is admirably adopted by Dr. Douglas Powell. This view reposes upon obvious theoretical considerations; upon the results of experiments with inflated balloons in glass vessels, where the physical conditions of pleural effusions are imitated with surprising accuracy; finally, upon

¹ Pneumono-dynamics: Boston, 1878.

the results of injections into the pleural cavity of dogs made with fluids capable of solidification, and which form permanent moulds *in situ*, and thus indicate the course taken by the injection in the fluid state.

The theoretical consideration is that the lungs are highly elastic bodies, normally maintained in a state of extreme tension by the pressure of the air contained in them, and which, while the pleural surfaces remain in contact, is counteracted by nothing. The atmospheric pressure hence acts with full force, and keeps the lungs exactly applied to the walls of their containing cavity, except in the complementary space at the base, reserved for forced inspiration. But if either air or liquid be admitted into the pleura, the internal atmospheric pressure within the pulmonary cavities, the bronchi, and air-cells, is counteracted to an exactly proportionate extent. To the same extent to which the pressure of the air is diminished, is the elastic tissue of the lung able to return from the over-stretched conditions into which it had been put by the unopposed pressure of the air. Like any other elastic body, the lung tends to return to its original size as soon as the distending force is withdrawn. In the case in question, the distending force is not withdrawn, but it is partially neutralized. To the same extent does the elasticity or retractility of the lung come into play: it retracts upon its contained air.

As in every interplay of physical forces, the effective condition of this phenomenon, the retraction of the lung, cannot be considered its efficient cause. The effusion does not precede in time the retraction; but the two phenomena march *pari passu* together. The efficient cause of the retraction of the lung is the elasticity of its tissue, which comes into play as soon as the obstacles to its manifestation are removed. The effusion removes the obstacle by neutralizing to a greater or less extent the pressure of the air. It is, therefore, the condition upon which the manifestation of the retractile power of the lung depends; but by no means the efficient cause of the retraction or of the diminution of size.

An elastic body cannot be compressed until its elasticity is exhausted.

So long as any elasticity remains, the body exercising pressure can only neutralize atmospheric pressure, and allow the over-stretched elastic body to return upon itself. The pressure allows this; it does not compel the reduction of the body to a small size, as is done when inelastic bodies are compressed, by forcible approximation of their molecules.

This theoretical exposition is well illustrated by Garland, by means of such a little apparatus as is here shown. It consists of a pear-shaped flask, surmounted by an opening closed with a

rubber cork, and terminating below in a long tube, through which passes a stop-cock. Within the flask is suspended a thin rubber balloon, attached to a glass tube, which passes air-tight through the rubber cork. The stop-cock and tube at the lower

FIG. 1.



Balloon around glass rod, before insertion into flask.

part of the flask are filled with water, by immersing the tube in water to above the level of the stop-cock, while the cork is out of the flask. The tube is then plunged under water, the stop-cock opened, the cork inserted tightly, and the balloon inflated through the glass tube until it fills the flask. If the size of the balloon and the flask corresponded accurately, the balloon would adapt itself accurately to the walls of the flask. As it is, the adaptation is exact enough to fulfil the conditions of the experiment. See Fig. 2.

The stop-cock may then be closed and the apparatus be lifted out of the water without causing any change. The balloon remains inflated, for, though its cavity communicates freely with the open air, the column of water remains in the lower tube. If now, while this lower tube is plunged to a greater or less extent under water, the stop-cock be opened, the column of water in the tube will be subjected to the pressure of the water in the vessel—pressure which increases with the depth of immersion. At a certain depth there will be no change, for the column of water below the balloon will be equal to the pressure of the atmospheric air within. If the tube

be plunged lower, the pressure of the column of water will become equivalent to a part of the pressure of the air, and will neutralize it. To exactly

FIG. 2.



Flask with balloon expanded and filling flask. Tube filled with water, and then closed.

the same extent will the balloon be relieved of a certain degree of tension, and return upon itself

FIG. 3.



Flask after some water has been admitted by turning the stopcock while nozzle under water. Balloon retracted and partly collapsed.

proportionately. Thus, as Garland expresses it, the "balloon flees before the advancing column of water," and must continue to do so until its re-

tractility is exhausted, and the flask is exactly filled by water plus the collapsed balloon. In this condition it would be impossible to aspire water into the flask, as had previously been done while the balloon was retracting and exerting a negative pressure upon the column of water. But if more water were injected forcibly into the full flask—as it could make no room for itself against the rigid walls—it would, with a *point d'appui* taken upon them, press upon the balloon until the compressibility as well as the elasticity of the latter was exhausted. The same thing may happen with pleural effusions, but only under one of two circumstances. The effusion may be exceptionally abundant, or the lung may have been already consolidated by disease, and thus, at the outset, deprived of its elasticity, and, therefore, exposed to compression much earlier in the course of an effusion.

Observation of this simple but instructive apparatus illustrates some other circumstances. As the balloon retracts, returning upon itself from the condition of over-distention, it becomes flaccid. It is to an analogous flaccidity of the lung that Weil has attributed the phenomenon of tympanitic percussion resonance often heard over the lung above the level of a pleural effusion.

The stomach, whose walls are flaccid, gives a tympanitic resonance which, as every one knows, contrasts markedly with the much lower percussion note of the normally distended lung. It is easy to demonstrate experimentally, as I have myself done before a class, by inflating the excised lung of a calf or sheep, that, when inflation was complete, percussion yielded the normal tone; but if air was allowed to escape from the lung, percussion gave a tympanitic sound. According to Weil, in the distended lung the walls of the air-cells do not vibrate with the vibrations of their contained air; but in the relaxed lung, as in the stomach and intestine, the walls of cavities containing air are thrown into vibrations whenever the air vibrates; and the coincident vibrations of heterogeneous bodies result in the tympanitic sound.

Another point deserving notice in the apparatus is the re-expansion of the balloon if water be allowed to run out through the inferior opening. The balloon re-expands as rapidly as it had retracted. It is drawn by the negative pressure of the water potentially; the efficient cause of the re-expansion being the pressure of the internal air, when a tendency exists to form a vacuum, as the water falls away from the balloon. This phenomenon is of great importance in understanding the re-expansion of the lung after operations for the removal of a pleural effusion. I will return to it again. In describing the condition of the child previous to operation, I have said that the region

of absolute dulness reached the second rib in front and the spine of the scapula behind, and was bounded superiorly by a horizontal line. There did not exist the curved, or letter S line, discovered and described by Dr. Ellis, of Boston. According to this line, the region of absolute dulness is highest in the axillary line, and thence descends toward the median line, to the sternum in front, to the vertebral column behind. Dr. Peter, of Paris, interpreted this line as an indication of a purulent effusion, which, being more viscid than a serous fluid, would adhere in places to the thoracic walls, while the serous fluid would assume the hydrostatic level. It is unnecessary to discuss this theory, for it has been abundantly proved that the curved line can be distinguished by careful percussion when the effusion is serous as well as when it is purulent. But Garland, in seeking to explain the *rationale* of this elevation of the fluid in the axillary line, has ingeniously demonstrated the value of the curved line as a measure of the remaining retractility of the lung—as a measure consequently of the amount of effusion.

Since the elevation of one part of the upper surface of a mass of liquid is contrary to hydrostatic laws, it is clear that these must have been thwarted by some special force acting in opposition to them. Fluid cannot rise above its own level, and if it is found above it, it must have been driven or pushed up. Now it has already been shown, and elegantly illustrated by the balloon and flask apparatus, that during the early stages of a pleural effusion, while the lung is retracting, it necessarily aspires the fluid in contact with it, by virtue of negative pressure. The force of retraction is greatest where the extension has been greatest, hence first and most powerfully exercised from below upward. Subsequently, the lung also begins to retract in its transverse diameter, or from the external thoracic wall toward the lung root. In so retracting, a virtual vacuum is created between the lung and the chest wall, and into this the fluid rises. It rises first and higher in the axillary line, because the force of retraction is greater in the transverse diameter of the lung than antero-posteriorly. Correlatively, as long as the region of absolute dulness is confined to the inferior and axillary portions of the chest, and the diaphragm is not depressed, we may infer that the effusion is moderate, and that the lung retains much retractile, hence much expansile, power. Even when absolute dulness has spread over the anterior and posterior regions of the chest, the fluid may be known to have followed the lung, so long as its upper border presents a curved line. But if the lung reaches its furthest limit of retraction, it ceases to aspire the fluid, or to hold this above its normal level, which is a horizontal line.

Contrary, therefore, to the theory of Peter, the

maintenance of the curved line, incapable of distinguishing the nature of the fluid, does indicate moderation in its amount, and preservation of good retractile power in the lung; while the substitution of a straight line, indicating the natural level of the fluid, shows that the effusion is extensive, and the lung on the point of being compressed.

Garland tested the respiratory force of the lung by means of injections, into a dog's pleura, of cocoa butter, which was allowed to remain there until complete solidification. Examination of the moulds thus formed showed that, whether the injection had been made with the dog in a horizontal position or suspended vertically, the fluid had risen above its hydrostatic level, and formed a curved line projecting toward the axilla. I have imitated this experiment and obtained similar, though less striking, results, as the amount of cocoa butter injected was smaller.

(To be continued.)

PROPOSED LEGISLATION RELATING TO THE MEDICAL PORTION OF THE PENSION BUREAU.

BY HENRY BIXBY HEMENWAY, M.D.,
OF KALAMAZOO, MICH.

IT is not a matter of indifference to the general profession how any portion thereof is regarded and treated. The disgrace of a single man is a disgrace upon the fraternity. A physician doing public service is almost without exception ill paid. How many health officers receive compensation proportionate to the work done? No one would think of letting the position of city or county attorney to the lowest bidder, and yet in a wealthy and intelligent community, at no distant period in the past, the position of county physician was given to the lowest bidder, after advertising for proposals. While attorneys may regulate admission to the bar, a like privilege is not granted to physicians. Because many knaves with little education secure large patronage, the people deprecate the medical service. Two boys set out, the one to study medicine and the other law. The lawyer is admitted to the bar at the end of two years, after having been able to pay his expenses by legal writing while studying. The doctor must be at constant expense for three full years before he is entitled to earn anything by his profession. Each is then called upon for a like amount of public service. The lawyer's bill is promptly audited, while the authorities hesitate to allow one-fourth as much to the doctor. Such conduct toward our profession is belittling and degrading. It is therefore time that the whole profession should be aroused to act in harmony.

The attention of the profession at large has occasionally been directed to pension legislation. Dr.

P. S. Connor, of Cincinnati, read a paper before the American Academy of Medicine, at Pittsburg, 1886, in which he urged the appointment of forty boards of examining surgeons, each consisting of two members, who should devote their entire time to that service. His paper was published in the *Journal of the American Medical Association* (vol. vii. p. 570). Dr. L. Brown, of Pottsville, Iowa, in the same journal for January 1, 1887, criticised this paper at length, but he omitted to say that such a special service would not attract men of large experience, and lacking that, the examiners would be dogmatic and theoretical rather than practical. I might give illustrations of this, drawn from the work done in the Washington office, had I the space.

On the other hand, it is not desirable that boards be too greatly multiplied; first, because from lack of available material from which to construct boards, the quality of the work done must deteriorate; and, secondly, if the work is so decreased as to diminish materially the pay of members, the position cannot command the best talent.

In this same journal for Oct. 27, 1888, is an article by Dr. John W. Wright, of Columbus, read before the Section on Ophthalmology at the meeting of the Association in 1888, on "A Plea for the Better Recognition of the Oculist in the Service of the U. S. Pension Department." A like plea might be made for all specialists treating diseases of men. It simply shows hows how preposterous it is to attempt to establish a board at every country cross-roads.

Pension applicants are examined only when ordered by the bureau, or by a "special examiner." (The "special examiner's" work is purely legal, and cases are put into his hands in which the evidence is conflicting or doubtful.) Examination orders are issued in duplicate, one going to the applicant and the other to the particular board or single surgeon before whom the case is ordered. An order is to be obeyed by the applicant and honored by the surgeon within three months from date of issue. At the end of that time, orders remaining in the hands of the surgeon are returned with the endorsement, "failed to appear." The order to the surgeon gives the statement of claims. When it is impossible for the examination to be made by a "board," the Commissioner orders a single surgeon to visit the applicant and make the examination.

The boards, or single surgeons, do not grant the pension, or pass upon the legality of the claim. Evidence as to the degree of disability, or to the cause thereof, have no value for the board. That should be sent to the bureau. The work of the examining board consists of making a record of the present physical condition of the applicant, with an estimate of the degree of disability from each cause,

including senility. Formerly the examination was only with reference to the special claims. Under the late medical referee, as well as the present, all disabilities have been examined, whether originating in the service or not. The record made is called the "certificate of examination."

In the Washington office the force consists of one medical referee, one assistant, two surgeons, and eighteen medical examiners. These men receive each per annum, respectively, \$3000, \$2500, \$2000, and \$1800. The completed certificate is first examined by one of the eighteen medical examiners, later by a surgeon and the medical referee or his assistant. In passing upon the case, the examiners have before them all the papers in the case, often including several certificates of examination. Can it be expected that a dozen and a half medical examiners should carefully judge all the certificates for the country? Is it strange that when the magnificent salary of \$1800 is paid each examiner, incompetent assistance should be secured. Dr. Wright's remark really applies more forcibly to the Washington office than elsewhere.

A certificate of examination must be in the handwriting of a member of the board. It gives the name, rank, service, and post-office of applicant, number of his claim, date of examination, and post-office of board, disabilities for which pension is claimed, pulse rate, respiration, temperature, height, weight and age of applicant, and applicant's statement. These are followed by results of examination, and ratings of each disability. If the claim is on diarrhoea, for example, the certificate must show the condition of tongue, teeth, gums, skin, liver, spleen, stomach and intestines, and heart. "The rectum must be explored digitally or with speculum," and any fissure, fistula, haemorrhoid, or prolapse must be carefully described. As to heart, it is required to give location of apex beat, area of dulness and position, character of impulse, character of sounds, exact location of bruit as to time and valve, dilatation or hypertrophy, dyspnoea, oedema, or cyanosis. If disease of kidneys is affirmed (which generally means simply lumbago), the condition of all vital organs must be stated, with chemical and microscopical examination of urine and ophthalmoscopic examination of the eye. Gunshot and other injuries, neuralgic tracts, etc., must be shown by a diagram. Every certificate must be signed by each member upon its face and back, and it must be copied verbatim into the record book, and the copy also signed by each member.

It will therefore be seen that the work is not small—is, in fact, many times greater than that required by any life insurance company. It is not allowable for one member of a board to make the examination. All must participate. Boards vary

greatly as to capacity for work. One may examine thoroughly twenty men, while another is going through five cases. This capacity for work depends upon system and concentration. Since it takes more time to write the certificate than to make the examination, much depends upon the speed of the writer. It is not allowable to have a clerk. Twenty examinations is a legal day's work, and as a rule it is a full day's work. A good certificate must be short, concise, clear, and complete.

Aside from any writing that may be done at the meeting of the board, it is expected that the secretary shall transcribe the certificate into the record book, back the certificates (for filing), make out the daily and quarterly reports, and attend to the correspondence of the board. For each day's work there must be made out one daily, and two quarterly reports. These reports give, for each applicant, date of examination, name of applicant, character of claim, number, and services, and the fee of each examiner. The names must be arranged in two alphabetical series. For a day's work of twenty examinations made by the Kalamazoo board, the word "Kalamazoo" must be written sixty times on the certificates and fifteen times on reports; total, seventy-five times. It may occur more times. The date must be written 102 times for the same work, and each member must sign his name forty-three times. No stamping is allowed.

Surgeons are supplied with the blank forms of the office, and envelopes addressed to the Commissioner. They must supply other stationery, pay postage on all correspondence, except with the Commissioner, and furnish an office with the necessary instruments for making the examinations in accordance with modern science.

Prior to the act of March 3, 1885, surgeons received two dollars for each examination. That act reduced the compensation so that now surgeons receive two dollars each for each examination up to five, and one dollar each on further examinations up to twenty, examined on the same day. There is no legal compensation for the extra labor devolving upon the secretary of the board. Many boards, however, agree upon certain concessions. Some pay the secretary five or ten dollars per quarter; others ten per cent. of the receipts of the board; others still, ten to twenty-five cents per examination.

The present small compensation is made still smaller by delay in auditing and paying accounts. On October 23, 1889, the accounts for the board of which the writer is a member had not been audited for the quarter ending June 30th.

A meeting of examining surgeons was held in the Pension Building during the International Medical Congress, September, 1887. After a general discussion, it was resolved unanimously that the present

compensation is far too small, and Congress was asked to restore the former fee. At the request of Dr. Campbell, medical referee, I drafted two bills, which were introduced before the lower House by the Hon. J. C. Burrows. The first of these relates to the medical staff in the Washington office, and reads as follows:

A BILL

To increase the efficiency of the Medical Division of the Pension Bureau.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the medical staff of the Pension Office shall consist of one medical referee, one assistant medical referee, three surgeons, and twenty-four medical examiners.

SEC. 2. That the medical referee shall be a man of preëminent professional ability, and shall receive the sum of four thousand dollars annually. He shall be the chief of the Medical Division, and as such shall oversee and arrange the work of said division.

SEC. 3. That the assistant medical referee shall also be of preëminent professional ability, and shall receive an annual salary of three thousand and six hundred dollars.

SEC. 4. That the three surgeons shall be experts in their profession, and shall each receive an annual salary of three thousand dollars.

SEC. 5. That the medical examiners shall be surgeons of education, skill and experience, and shall receive each an annual salary of two thousand and five hundred dollars.

SEC. 6. That all former acts or portions of acts conflicting with the provisions of this act are hereby repealed.

SEC. 7. This act shall take immediate effect.

It adds one surgeon and six examiners to the present force, and increases their salaries as follows:

Medical Referee, from \$3000 to \$4000. Assistant Referee, from \$2500 to \$3600. Surgeons, from \$2000 to \$3000. Medical Examiners, from \$1800 to \$2500.

As originally drafted, at Mr. Burrows' suggestion the salary of medical referee was \$5000 and his assistant \$4000, but Dr. Cambell asked that they be cut down as above to assist in the passage of the bill.

The second bill relates to boards of examining surgeons, and reads:

A BILL

To increase the efficiency of Boards of Surgeons for the examination of pension applicants.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That each member of each board of surgeons for the examining of applicants for pensions, shall, as now authorized by law, receive the sum of two dollars for the examination of each applicant.

SEC. 2. That the secretary of each board of surgeons

shall receive a further compensation of fifteen cents for each examination.

SEC. 3. That the secretary of each board of surgeons shall be, and hereby is, empowered to employ a clerk, and for the official conduct and pay of such clerk the said secretary shall be responsible.

SEC. 4. That all former acts, or portions of acts, in conflict with the provisions of this act, are hereby repealed.

SEC. 5. This act shall take immediate effect.

Dr. Campbell thought that section 2 ought to say twenty, in the place of fifteen cents. So far as examining boards have been heard from, all agree that it should say twenty-five cents, and when the bill is again introduced, this change will be made. It must be noticed that section 3 does not add any expense, but makes legal the employment of a clerk by the secretary.

Mr. Burrows has introduced these bills before the present session of Congress, and Mr. Stockbridge will present them in the Senate. It is therefore hoped that *every* physician, whether in the government service or not, will, *without delay*, write to his Representative and Senator in support of these bills. It is not claimed that the pay here proposed is such as it should be, but it is better than at present. If all will give their aid, the changes may be accomplished. If the present low rate of compensation is continued, the service must deteriorate. Imperfect work necessitates more frequent re-examinations, and justice to the pensioner is impossible.

HOSPITAL NOTES.

ANTISEPTIC IRRIGATION FOR SYNOVITIS OF THE KNEE. IMPLANTATION OF MUCOUS MEMBRANE IN TRAUMATIC STRicture. OF THE URETHRA. IMPLANTATION OF BONE.

Abstract of a Clinical Lecture Delivered at the New York Hospital.

BY ROBERT F. WEIR, M.D.,
ATTENDING SURGEON.

DR. WEIR alluded to a case of chronic serous synovitis of the knee on which he had operated at the previous clinic. The fluid in the joint had been evacuated, and the joint repeatedly washed out with a 1:20 solution of carbolic acid under strict antiseptic precautions. After applying the usual dressing the limb was placed in an immovable apparatus. He called attention to the thickening that occurs around the joint after this procedure, and which is sometimes accompanied by some accumulation of fluid. So long as there is fluid the patient should not be allowed to go about; but when the thickening alone exists it may be disregarded, for it will slowly disappear while the patient is moving around.

He then presented a case of traumatic stricture of the urethra which had not yielded to the usual methods of

treatment. The patient, a boy, thirteen years of age, sustained an injury to the perineum a little over a year ago; and following this, there was sloughing of the perineum and extravasation of urine, resulting in stricture and difficult micturition with a perineal fistula necessitating the operation of external perineal urethrotomy, which was performed on the patient in the winter of 1889-1890 by Dr. W. T. Bull. There was always great difficulty in passing an instrument, and the contraction recurred to such an extent as to demand a second operation, which was performed by Dr. L. A. Stimson in August. At the time of leaving the hospital, and for about two months afterward, the boy urinated through the natural channel, but no instrument could be passed into the bladder. Then the old perineal fistula broke open, and from that time on the urine was voided through this opening. Ordinarily, Dr. Weir remarked, traumatic stricture occurs anteriorly to the triangular ligament; but occasionally, chiefly as a consequence of blows or kicks received from behind, the injury is in the membranous portion, and very rarely in the prostatic portion, one instance of which was briefly alluded to. From a rectal examination of this case, there was little doubt from the thickening of the tissues found that the injury extended behind the triangular ligament. It was found on passing an instrument through the meatus to the middle of the perineum, and cutting down upon it, that a probe from that point passed only a very short distance without complete obstruction; an instrument was finally passed from the perineum upward into the bladder, and the urethra near the prostate was gradually enlarged from the size of a No. 10 French bougie until sufficient room was gained to admit a No. 30 sound. While doing this much cicatricial tissue was encountered both anteriorly and posteriorly to the urethra. The space between the anterior urethra and the posterior portion was then cut through the median line, and by division of the meatus, a No. 26 sound was passed in from that direction to the bladder. As the stricture had proved so obstinate under treatment, and showed such a strong tendency to recur, it was thought that benefit might accrue from replacing the mucous membrane which had been destroyed for about half an inch or more on its upper surface, and to an extent of nearly an inch on its lower aspect, by one of the grafting processes.

Wölfler, a former pupil of Billroth, stated before the Society of German Surgeons, in 1888, that he had been able to transplant mucous membrane with as much ease and success as was commonly met with in skin-grafting. It was only necessary that some means should be found which would secure adhesion of the pieces of mucous membrane for a short time in order to obtain the desired result. He had three times resorted to this method for impermeable stricture of the urethra, and in these cases had made use of pieces of mucous membrane from a prolapse of the rectum or of the uterus; but he had found that mucous membrane from some of the lower animals would answer the same purpose. He had employed the mucous membrane from the cesophagus of a pigeon, or from the cesophagus or bladder of a guinea-pig, because in these animals the mucous membrane is readily removed from the submucous tissue. It could certainly do no harm to resort to this method in the present instance, and it might be productive of much good.

The operation had been performed four days previously, as it was considered that the grafts would be better applied after granulation had become established than on a bleeding surface.

Pieces of mucous membrane just removed from the oesophagus and bladder of a guinea-pig were then inserted in the perineal wound and retained in place by several fine sutures. A soft catheter was then introduced into the bladder, which smoothed out the wrinkled mucous membrane, and in addition held it *in situ*. This was fastened in position, and the wound lightly packed with iodoform gauze.

It is extremely difficult to say what will be the success of this procedure; but it must be remembered that the certainty of relief can only be definitely determined after the lapse of a number of months.

Dr. Weir then directed the attention of the class to the method of filling up large bone cavities by the implantation of small pieces of bone; and presented a patient, who two weeks before had been subjected to an operation for necrosis of the lower end of the tibia. The cavity left after the removal of the large sequestrum had been filled with pieces of decalcified bone, according to the method advocated by Senn, of Milwaukee. The operator had doubted the success of the operation both on account of the difficulty of securing a thoroughly aseptic cavity in this particular instance, and because he had not yet been able to understand how, under such circumstances, decalcified bone, catgut, or any similar material could be converted into new bone. He could readily believe that the material when introduced might act as a skeleton or framework for the new vessels, until these delicate structures were strong enough to live without such support. The dressing had not been disturbed for two weeks, and everything had apparently done well; but on removing the dressing, it was found that every one of the pieces of decalcified bone had dissolved and come away in the discharge from the wound. Notwithstanding this failure in grafting, there had been some organization of the blood-clot, and the cavity was considerably smaller than is usually found after the lapse of two weeks.

He proposed, in a similar case, which he was now about to bring before the class, to adopt another method of implantation of bone, and in doing this, he would be guided by the experience of Macewen, who was one of the pioneers in this department. The process consists in filling the bone cavity with very small pieces of bone which have been removed from a recently killed dog, selecting grafts, according to the suggestions of Poncet, from the neighborhood of the epiphyseal line, because of the greater nutritive activity there.

The patient was a tailor, thirty-seven years of age, who for twenty-four years had been troubled by disease of the left tibia, with occasional abscesses of this part. He was rather poorly nourished, and there was an opening on the outside of the left tibia just above the middle, which connected with the interior of the bone. It was probably a case of chronic bone abscess.

On chiselling away a little of the diseased bone, an abscess deep down in the bone was exposed. After removing the diseased tissue, and thoroughly scraping and cleansing the resulting cavity, some three inches long, one and a half inches wide, and the same in depth, small

pieces of bone were introduced according to the method already described. The fragments were freely dusted with iodoform, the skin brought together with interrupted sutures, and the usual antiseptic dressing applied.

MEDICAL PROGRESS.

Treatment of Tubercular Arthritis with Injections of Iodoform.—DR. FEDOR KRAUSE has recently treated several cases of tubercular disease of the joints with injections of the following emulsion:

R.—Iodoform	5 parts.
Mucilage of acacia	2.3 "
Glycerin	8.3 "
Distilled water	50 "

The injections were practised only on cases of severe tubercular arthritis in whom cure without operation seemed impossible. If an abscess of the joint existed the pus was withdrawn by means of a trocar, the cavity being thoroughly washed out with a 3 per cent. boric-acid solution. Through the trocar opening the iodoform mixture was injected, after which passive motion was used in order that the iodoform should be brought in contact with all parts of the articular surfaces. The injections are only slightly painful, but a rise in temperature for one or two days occasionally follows. The results, Krause claims, are good, and the method is worthy of a more extended trial.—*Centralblatt f. Therapie*, January, 1890.

Suturing an Intra-capsular Fracture of the Femur.—Another case is reported from Italy in which PROFESSOR LORETA has sutured an ununited fracture of the neck of the femur. The patient, who was about forty years of age, had suffered considerable pain in the joint, the fracture having occurred more than a year previously. A long incision was made behind the great trochanter, and the capsule of the joint exposed as though an excision was to be performed. The capsule was incised and the ends of the bone scraped to promote union. The fragments were then brought in close apposition with twelve metallic sutures, the ends of which were brought out of the wound, so that they might be removed later. The wound was thoroughly irrigated, after which a drain and the usual sublimate dressing were employed. The limb was kept at rest by means of an external splint, and a few days after the operation the wires were withdrawn. A good recovery with a useful limb resulted.—*Illustrated Medical News*, December 14, 1889.

Further Observations on the Use of Antipyrin in Whooping-cough.—In connection with the diverse opinions upon the value of antipyrin in whooping-cough the observations of WINDELSCHMIDT, of Cologne, are interesting. This author has treated a series of 350 cases with antipyrin. The results in one-half of the cases were good, the duration of the disease being reduced to two or three weeks. In 30 per cent. of the cases either no results followed the administration of the drug, or the patients withdrew from treatment. In the remainder the antipyrin had a well-marked sedative effect. Windelschmidt considers that for this method of treatment to be effective it should be

begun early in the case. The dose employed was one and a half grains for each year of the patient's age three or four times daily.—*Centralblatt f. Therapie*, January, 1890.

The Significance of Urobilinuria.—M. HAYEM considers that urobilinuria, when habitual, persistent, and varying in degree, has a clear pathological significance, and is a valuable indication in forming an early diagnosis in diseases of the liver. He regards urobilin as the characteristic coloring matter of hepatic incompetency. He has observed urobilinuria in the following diseases: 1. At the beginning of alcoholic cirrhosis. 2. In patients with cardiac disease in whom the liver is not enlarged it may be an indication of incipient hepatic lesions. 3. In numerous acute affections, when observed in alcoholic patients, such as typhoid fever. When a large proportion of urobilin is detected in this affection, reserve should be made with regard to the prognosis. 4. In newly delivered and nursing women. 5. In most forms of cachexia. Urobilin has a feeble coloring power, and is found in pale urine. The deep coloring of urine observed in certain affections (fever with perspiration, lassitude, overfatigue) is usually due to urochrome.—*British Medical Journal*, January 4, 1890.

[The following are Professor Tyson's directions for testing for urobilin: Add ammonia to the urine until distinctly alkaline, filter, and to the filtrate add a little chloride of zinc solution. The appearance of a green fluorescence indicates the presence of a considerable amount of urobilin.—ED.]

Acute Pancreatitis.—LANGERHAUS recently reported a case of acute pancreatitis before the Medical Society of Berlin. The patient, aged fifty years, became suddenly ill with vomiting, headache, giddiness, and weakness. During the following night the abdomen became markedly tympanitic and he suffered somewhat from dyspnoea. Cold applications temporarily reduced the tympany, which, however, soon returned accompanied with severe pain in the left hypochondriac region. When admitted to hospital an indurated swelling was observed above the umbilicus extending obliquely across the abdomen. The patient's temperature was slightly elevated; the pulse was weak and a few "rose" spots were discovered. The case was diagnosed typhoid fever. For some time the condition of the patient was but little changed. There was occasional but not violent vomiting for several weeks, when it became more frequent, the ejecta having an offensive odor. Finally, unconsciousness and death supervened. At the autopsy the pancreas was found completely necrosed and lying in a cavity formed by the distorted and adherent abdominal organs. It is to be noted that the duration of this case was more than eight weeks, most cases of acute pancreatitis terminating much earlier.—*Deutsche medicinische Wochenschrift*, December 12, 1889.

Unna's Treatment of Tinea Tonsurans.—UNNA believes chrysarobin to be the most useful remedy in all parasitic diseases of the skin. In tinea tonsurans the drug is not much used by most dermatologists from the fear that the drug may reach the eyes, where it causes severe inflammation. Unna has devised the following method of applying it which eliminates this danger: First, the hair

around the affected areas is cut off, not shaved. Then a band of zinc oxide and glue is painted across the forehead, above the ears, and around to the back of the neck. Following this a chrysarobin ointment is carefully spread upon the diseased scalp, the ointment which he uses being composed of:

Chrysarobin	:	:	:	5 parts.
Salicylic acid	:	:	:	2 "
Ichthylol	:	:	:	5 "
Simple cerate	:	:	:	100 "

Or a simple 5 to 10 per cent. chrysarobin ointment may be used. A broad strip of gutta-percha paper is passed around the head in such a manner that the lower edge adheres to the oxide of zinc glue. This impermeable paper is then painted with glue and covered with a mull bandage, and over the whole a flannel cap is placed. The latter may be sewed to the mull bandage. Every twenty-four hours the cap and bandage are removed, and the gutta-percha paper cut to obtain access to the scalp, which is then cleaned, smeared with fresh ointment, and covered again with a new mull bandage and flannel cap. If the ointment finds its way through the dressings it must be carefully wiped off and the soiled portions thoroughly painted with oxide of zinc glue. Thus carefully protected, the child may be allowed to mingle with healthy children without danger of infecting them.

In four days the outer dressings are removed and the chrysarobin ointment replaced by a five per cent. ichthylol salve, which will dissipate the superficial irritation caused by the chrysarobin. At the end of the first week all the dressings may be removed and the scalp washed with oil and soap. The diseased parts are then seen to be of a lighter color than the surrounding skin.

The entire treatment is to be repeated three or four times, but Unna has never found that a fifth cycle of treatment was necessary to effect a complete cure.—*Monatshefte für Praktische Dermatologie*, Dec. 1889.

The Use of Papain in Suppurative Otitis.—DR. MCKINZIE JOHNSTON, of Edinburgh, writes that in chronic suppuration of the middle ear pain is an almost certain indication that the secretion has not free exit, which may be due to the smallness of the perforation, the viscosity of the pus, or to obstruction by growths or by hardened masses of dry pus, débris, or cholesterol. It is well known that if these conditions are neglected there is grave danger that the retained septic pus may lead to an extension of disease, possibly necessitating an operation for mastoid abscess, or even for cerebral abscess. It seems, therefore, evident that anything which will facilitate the cleansing of the middle ear, and readily dissolve hard masses of débris, etc., must of necessity decrease the risk of these serious consequences. In papain we have a drug capable, by its digestive action, of thoroughly cleansing the ear in those cases in which simple syringing is insufficient. Dr. Johnston has tried it now in a number of cases, and apparently with most satisfactory results. Of course, it is impossible to say that any one of these cases would have gone on to mastoid disease had they not been so treated, but cleansing of the ear was rapidly effected, and in one or two cases the relief of the pain was most marked.

The following is the way he employs the drug: 15 minimis of a 5 per cent. solution of papain are dropped

into the ear, care being taken that it reaches the bottom of the meatus. If necessary, the patient may be made to swallow while holding the nose, so as to draw the fluid in the middle ear. Mindful that bacteria develop largely in fluids acted on by this drug, it should be allowed to remain for one hour only, after which the ear is syringed out with boric lotion and carefully dried. This may be repeated as often as necessary.

This plan of treatment seems especially suitable to long-standing cases where there is only a little thin and very foul-smelling discharge, probably associated with diseased bone.—*Edinburgh Medical Journal*, January, 1890.

Ehrlich's Reaction.—DR. BACNACCI, assistant in Bufalini's clinic, has recently made a number of careful observations on Ehrlich's diacetone reaction. His studies included the urine of patients suffering from several different diseases. In cases of advanced phthisis the reaction was occasionally present, but not constantly. In the urine of patients suffering from pneumonia, variola, acute enteritis, and typhus fever, the test was usually negative. In diabetic urine the reaction could almost invariably be demonstrated. The reaction was also present in the urine of patients who were taking either iodol, soziodol, thymol, or strychnine. In diabetic urine which had been subjected to prolonged boiling the reaction could no longer be detected.

The author considers it probable that the reaction bears some relation to the sugar and acetone present in diabetic urine.—*International klinische Rundschau*, December 8, 1889.

[Ehrlich's or the diazo-reaction was first announced as a diagnostic sign of typhoid fever, and consists in adding to the suspected urine a solution of sulfo-diazo-benzol, then a solution of ammonia. If the reaction occurs, the mixture becomes at first deep red, which is followed by the precipitation of a dull green sediment.—ED.]

The Staining of Amyloid Tissues.—BUCHARDT describes the following new method of staining amyloid tissues in Virchow's *Archiv*:

Stain the sections in a moderately strong solution of gentian-violet in aniline water. Decolorize in a solution of hydrochloric acid (1 : 10) for ten minutes. The amyloid portions of the tissue are then a dark purple, the other portions colorless. Then wash in water and clear up in a solution of potassium acetate.—*Centralblatt f. medicinische Wissenschaften*, December 14, 1889.

Creolin Pills.—According to *L'Union Médicale*, the following is a convenient formula for the internal administration of creolin:

R.—Creolin $1\frac{1}{2}$ drachms.
Dilute alcohol 15 minimis.
Extract of liquorice } of each, $1\frac{1}{2}$ drachms.
Pulverized liquorice }
Tragacanth 15 grains.—M.

Make in one hundred pills.

Pharyngitis from Defective Drainage.—At a recent meeting of the Montreal Medico-Chirurgical Society DR. J. C. CAMERON endeavored to prove that when a number of cases of sore throat with adynamic symptoms break out

in a household there is good reason to suspect defective drainage as the cause. He detailed ten cases which occurred in one house, in which an examination revealed a defect in the ventilation of the soil-pipe. In six of the reported cases both severe tonsillitis and ulceration, resembling that of diphtheria, were present.

DR. MAJOR, commenting upon this paper in the *Journal of Laryngology and Rhinology*, January, 1890, states his belief that defective drainage is frequently the cause of affections of the throat, both acute and chronic. In one instance coming under his observation, a family of five persons were attacked with painful symptoms referred to the throat. The appearance of the throat did not indicate acute inflammation, but the pharynx was covered with a thin, easily detached film. In each case the illness was ushered in with vomiting and slight elevation of temperature. The duration of the indisposition was only forty-eight hours. On examination of the drainage system the iron soil-pipe was found to have been recently broken at the outlet in the wall of the house, thus allowing the sewage to escape under the floor of the basement. Such a cause should always be suspected in the case of painful throats that defy the usual methods of treatment.

The Treatment of Nævus by Collodion.—At a recent meeting of the Midland Medical Society of England, MR. THOMAS showed three cases of nævi treated by the application of collodion—one in the back, another in the parotid region, and a third over the anterior fontanelle in a young infant. Collodion was painted over them and the skin in the vicinity, the applications being usually carried out by the mother. In all considerable improvement had resulted, rendering further treatment by operation unnecessary. He pointed out the absolute freedom from risk or danger, and the advantages it offered in some situations where almost all methods were unsafe.—*Birmingham Medical Review*, January, 1890.

Antiseptic Treatment of Erysipelas.—In the *Revista Clínica de los Hospitales*, December, 1889, an account is given by SENORES GANADO and DURÁN of a method which has proved highly successful in the hands of DR. HUERTAS, of Madrid, in the treatment of erysipelas of the face. It consists of painting over the inflamed part with 1 : 100 sublimate solution, followed by the application of a covering of carbolized cotton-wool; this is done twice in the twenty-four hours. In twenty cases thus treated the spread of the inflammatory process was at once checked, the zone of redness remaining exactly as it was when the case came under treatment, the disease entering on the desquamative stage on the second or third day. The authors claim that by this method the length both of the disease and of the period of convalescence was notably diminished, and that the complications frequently accompanying erysipelas were avoided. Constitutional treatment was at the same time not neglected, the *prima via* being kept clear and tonics freely given. In the way of internal medication, however, most reliance seems to have been placed on the administration of Van Swieten's "liquor," a solution of corrosive sublimate in alcohol much used on the Continent. Even in cases which were admitted as late as the third or fourth day of the disease, the temperature was reduced, and the local condition speedily improved by this treatment.—*London Medical Recorder*, December 20, 1889.

THE MEDICAL NEWS.

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OF MEDICAL SCIENCE.

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SATURDAY, FEBRUARY 1, 1890.

SCHOOL NEAR-SIGHT.

WIDELY and variously as the subject of myopia in the schools has been discussed, much remains indeterminate or contradictory, principally because of the diverse premises from which its students have started and the differing methods which they have employed; and although it is a question which concerns the Germans most especially, it is one in which every nation is really interested, since none are free from participation in it. A valuable contribution to the matter has recently been made by Professor v. Hippel, in Giessen. While reacting against the excessive outcry of some who regard the evil as ominously great and growing, v. Hippel is still among those seeking means for its prevention or diminution; and his study has special value because it deals with the practical endeavor to meet the requirements of relief, and with the results which have been thus obtained. The hygienic construction of the schoolhouse, with abundance of light and air, the subdivisions of the tasks of the day so as to afford intervals of rest and recreation, the enforcing of gymnastic exercise, the avoidance of overburdening the pupils with tasks in school, and especially with work to be done at home—these and many other matters insisted upon by the reformers would seem to have had an ideal realization in the new gymnasium of Giessen. When v. Hippel began his

study of the eyes of its pupils in 1881, the new building of the gymnasium had been but two years in use, and most of the elder scholars probably showed the effects of their unsatisfactory surroundings in the old structure; only after 1883 were the improved methods of instruction in full operation, and only in 1889 had he to deal with pupils who had been through almost all of their school life under the present good hygienic conditions. A gradual lessening of the myopia in the school was, therefore, to be expected; and the result showed 27.6 per cent. in 1881, falling to 17 per cent. in 1889. This is more evident in the class percentages, which were in 1881, 0, 12.5, 15.5, 19, 36.4, 57.6, 36.7, 54.1 and 78.6; but in 1889, 1.3, 9.1, 9.5, 16.7, 21.7, 36, 21.4, 39.3 and 28.5. Myopia increased, then, from 8.5 per cent. in the lowest two to 67 per cent. in the highest two classes in 1881, from 5 per cent. to 34 per cent. in 1889. Most German gymnasia show proportions much less favorable; yet it must be noted that near-sight less than 1 D. has been left out of the count here, and would have decidedly raised the percentage.

The gain, though decided, may well seem unsatisfactory, and may appear to call in question the value of the hygienic reforms so ardently advocated in many quarters; but careful consideration of the matter will show that the limited gain is really of great importance. Thus a study of the effect of this growing near-sight upon the visual acuity of the pupils shows that in this school at least serious and irremediable decrease in vision is exceptional. With the aid of glasses few of the myopic eyes showed subnormal sharpness of sight; while the proportion and degree of such a lowered vision were greater among the hypermetropic and especially the astigmatic. Explanation of this last may be readily found in the circumstances of the investigation, and similar results would doubtless be found elsewhere. The favorable showing for the myopes of the Giessen gymnasium is in this respect probably paralleled by few of the German schools; and there is good reason to believe that its good hygiene deserves much of the credit.

Another side of the picture is shown by the history of the limited number of pupils who were followed through any considerable part of their gymnasium course. Only 44 were followed for nine years and 40 for eight years; these showed the development of myopia in 26.4 and 21.2 per cent., respectively, of the non-myopic eyes; and increase of the degree

of myopia took place in almost all of those previously myopic. How much of this may fairly be ascribed to the exacting work of the school, how much to heredity (of which evidence was obtained in about 50 per cent.), it is not possible to say; but one point incidentally given deserves careful consideration. In spite of warnings given by the examiner and reiterated by the teachers as to the injurious influence of improper glasses, and the pointing out and condemning of such when found, his last examination showed that but one-fourth of the myopes were wearing proper glasses, half of them were wearing none, although their use had been advised, while the remaining fourth had improper ones. In Philadelphia, where the multitude, especially of children, wearing glasses is rather striking and is apt to raise the question whether the prescribing of glasses by oculists is not overdone, it is noteworthy that cases of the "progressive myopia," so much noted abroad, are decidedly rare—thanks probably to the use of mydriatics and to scrupulous accuracy in the correcting of refraction errors.

The two conclusions which v. Hippel draws seem worthy of careful consideration:

"In spite of the best architectural construction and appropriate arrangement of a schoolhouse; in spite of the avoidance of all overburdening of the pupils, and in spite of regular medical supervision, a notable proportion of the pupils will become near-sighted during the school period, and the near-sight present will increase in another portion."

"By following correct hygienic principles in the external conditions of the school and in the organization of the instruction, the frequency of near-sight may be considerably diminished, its grade may in the great majority of cases be kept within moderate limits, and diminution of the sharpness of sight largely avoided, while the occurrence of the usual complications of myopia, staphyloma posticum and spasm of accommodation, will be less frequent than they are otherwise apt to be."

REVIEWS.

ESTUDIOS SOBRE TERMOMETRIA CLINICA. (STUDIES ON CLINICAL THERMOMETRY.) By FERNANDO ESCOVAR, M.D. 8vo., pp. 55. Mexico: Ricardo Sainz, 1888.

DR. ESCOVAR has given in his little work a full account of clinical studies of the febrile changes of certain diseases, such as measles, typhoid fever, intermittent fever of

the quotidian type, pneumonia, pyæmia, and erysipelas. Dr. Escovar does not pretend, in this part of his paper, to give or suggest anything new; he simply writes about his clinical observations, some of them being very interesting, and all, we may say, corroborative of those of other investigators. But the most interesting portion of his essay is the one in which he gives an account of the original studies he has made on the temperature of the neck of the uterus and vagina and of the male urethra in certain disorders of the genito-urinary apparatus.

He made 153 observations with regard to the temperature of the neck of the uterus and the vagina, and found that in 46 women, aged from twenty-eight to forty years, who suffered from simple hypertrophy of the neck of the uterus, the temperature at this place was identical with that of the vagina, namely, 37.5° C. In 22 cases of granular metritis of the neck, the local temperature was 37.4° C., and that of the vagina 37.3° C. In 28 cases of uterine catarrh the temperature of the neck was 37.3°; of the vagina, 37.2°. In 57 cases of atresia of the neck the temperature was 37.2° in vagina and uterus.

He also made 320 observations of the temperature of the male urethra as follows: In 145 cases of blenorhoea and stricture, the thermometer marked at the region mentioned 36.1° C. In 92 cases of blenorragia, in the first period, the temperature of the urethra was 37.4°. In 82 adults, between thirty-five and forty-five years of age, who suffered from spermatorrhœa and impotence, the urethral temperature was 35.5°, and it is to be noticed that in 6 of these cases, who suffered at the same time from migraine, the thermometer only marked 34° C.

From these studies Dr. Escovar arrives at the following conclusions:

1. There is but little variation in the temperature of the male urethra, or of the neck of the uterus and vagina, in states of disease.
2. The pathological conditions under consideration do not influence, in any marked degree, normal temperature.

The pamphlet is interesting, especially as regards the latter part of Dr. Escovar's studies in a field which, so far as we know, no one has as yet worked carefully.

CORRESPONDENCE.

LISTER'S NEW DRESSING.

To the Editor of THE MEDICAL NEWS,

SIR: A few weeks ago you published an abstract of a clinical lecture delivered at the University Hospital on "The Latest Listerian Method,"—the double cyanide dressing as used by Sir Joseph Lister—my remarks having been based on an experience of a few months. As a more extended use of the dressing still further convinced me of its great efficacy, and as I knew that Lister was constantly endeavoring to improve the details of his methods, I wrote him to ask if he had made any changes in this direction or in his method of preparing the gauze since he had explained them to me in July of last year. The accompanying letter which I have just received in reply should be read in conjunction with the papers in *The Lancet* to which he refers. It was not intended for publication, but I venture to send it to you (with the omission of a personal paragraph), as

I am sure all practical surgeons in this country are interested in knowing the most recent views on antiseptic methods of the man who has not only revolutionized the principles of wound treatment, but is now devoting himself with unremitting labor to the elaboration and perfection of its details. Yours truly,

J. WILLIAM WHITE.

1810 S. RITTENHOUSE SQUARE, PHILA.

LYME REGIS, DORSET, January 7, 1890.

MY DEAR PROFESSOR WHITE: I have to ask your forgiveness for having so long delayed answering your inquiries regarding our antiseptic methods.

The papers which I have lately published on the cyanide dressing (see *The Lancet* of November 9, 1889, and January 4th of this year) will both supply the answer to some of your questions, and serve also to explain the difficulty I have had in finding time for correspondence. I felt it urgently incumbent upon me to publish the cyanide dressing; but, at the same time, I was very anxious to produce it in as useful a form as possible, and the labor connected with the successive improvements that suggested themselves was more than enough to occupy any spare time at my disposal. The preparation of the gauze will now present no difficulty if you obtain from Messrs. Morson, Southampton Row, London, W. C., the dyed cyanide, and follow the instructions given at the end of my second paper.

You will observe that the gauze, after being drawn through the liquid in which the cyanide is diffused, is hung up to drain until it ceases to drip, and then is placed in a folded sheet to remove the still redundant moisture. The precise time for which it remains in the sheet is a matter of no material moment; about half an hour being adequate to leave the gauze moist without being inconveniently wet. Immediately over the wound is placed a portion of the gauze, say about sixteen layers thick, washed in a solution of carbolic acid to get rid of the bichloride of mercury in the dressing in contact with the wound. I prefer for this purpose one part of carbolic acid to twenty of water, as safer than any weaker solution.

A very pure acid should be used, because, if impure, it is not completely dissolved, and the undissolved particles are needlessly irritating to the surgeon's hands. When you change a dressing you apply this piece of gauze over the wound before you proceed to clean surrounding parts with the carbolic lotion.

The carbolic acid soon flies off from the washed gauze, leaving nothing in it in contact with the wound but the unirritating cyanide.

By proceeding in this way I have not found it necessary to use "protective." As to the amount of unwashed gauze to be applied, that will depend upon the amount of discharge that you anticipate.

In the early stage of a wound, where you expect much sero-sanguineous oozing, it is desirable to use a considerable mass, say an inch in thickness, and extending well on all sides beyond the wound. Further, it is well, where free discharge may occur, to place over the dressing a piece of thin mackintosh with the caoutchouc side (antiseptically washed) next the dressing. This is for the purpose of preventing the discharge from coming directly through the dressing. It does not, of course, overlap the gauze, nor need it even extend to its edge. Where the part operated on is placed on a splint, as after

resection of the knee, the padding of the splint is lined with such a piece of mackintosh.

It is unnecessary to purify bandages or elastic bands that are placed outside of dressings, but if a bandage is used in the interior of a dressing, as in bandaging a stump next the skin, it is purified sufficiently by soaking it thoroughly with a solution of corrosive sublimate 1:2000. For purifying the skin I use water containing both 1:20 part of carbolic acid and 1:500 part of corrosive sublimate (*i. e.*, both combined). Or, in private practice, I commonly first wash thoroughly with 1:20 carbolic acid solution, and follow it up by washing with 1:500 corrosive sublimate lotion.

The towels placed around about the seat of operation are wrung out of 1:2000 sublimate lotion, and this is also used for the sponges during the operation. At other times the sponges, after being well washed in water, are kept in 1:20 carbolic solution.

The carbolic solution is also used for purifying the instruments before an operation. At the end of an operation, before beginning to stitch, I generally wash the wound with 1:500 sublimate lotion, and irrigate with 1:4000 during the stitching.

But where I open into a joint, such as the knee, I avoid the use of the strong sublimate solution, which is seriously irritating to the synovial membrane; and in that case I have irrigation during the whole operation with 1:4000. As to rendering wounds aseptic which have been infected, that is, speaking generally, a thing on which you can never reckon; in recent wounds, like compound fractures, the chance of success is, of course, always greater the shorter the time that has elapsed after the infliction of the injury.

If the skin and wound are greasy, oil of turpentine is of great value for cleaning away the greasy dirt, and the use of a nail-brush with carbolic and sublimate solutions, after the turpentine (or without it if there be no special occasion for its use), is very valuable. In most cases where septic sinuses are present, it is simply hopeless to try to extirpate the septic mischief; but very great advantage is gained by washing the cut surfaces in an operation under such circumstances with solution of chloride of zinc, forty grains to the ounce of water. This is done once for all at the conclusion of the operation, and prevents putrefaction during the critical early days after the operation. The same solution is also used where the wound communicates with a septic cavity, as after the removal of a portion of the tongue, or of a jaw; and under these circumstances it is also useful to apply iodoform to the cut surface after the chloride. In cases in which the septically infected part is of very limited extent, as, for example, where a suppurating strumous gland has discharged without an antiseptic dressing, complete disinfection may often be obtained by applying undiluted liquid carbolic acid, after scraping away the degenerated gland (or other) tissue with a sharp spoon.

Please accept my kind regards, and believe me

Very sincerely yours,

JOSEPH LISTER.

Recent Mortality in New York.—It is stated that in one day there were thirty deaths in the New York hospitals that were certified to be due to epidemic influenza and its sequels.

NEWS ITEMS.

A Posthumous Essay of Volkmann's.—The Berlin correspondent of the *Lancet* states that Professor Richard von Volkmann left behind him, almost ready for the press, an essay on cancer, which will be published soon by Dr. Fedor Krause, who was his assistant for many years. Volkmann ordered in his will that none of the numerous other medical and poetical writings which he left behind him should be printed.

A Promotion.—Dr. Thomas D. Ingram, formerly of Philadelphia, has been promoted to the position of Medical Referee in the Bureau of Pensions, in the place of the late Dr. Charles Macmillan. Dr. Ingram has hitherto held the office of Assistant Medical Referee.

A German Society for the Study of Hypnotism.—A society, chiefly composed of physicians, has been organized at Berlin, Germany, for the cultivation of experimental psychology, but at present it is mainly devoted to the study of hypnotism. The society was established in January, 1888, and has for its Secretary Dr. Max Dessoir, of Berlin.

The Treatment of the Insane in Canada.—It is not generally known that Canada, as well as the United States, has suffered from the meddling of politicians in the treatment of the insane. The Montreal *Medical Journal* shows the unfortunate fact that in that country it is not the custom to appoint men to the position of superintendent because they are fitted for the work by education or experience: "In most of the provinces the first, and in fact the only, qualification is the reputation of being an energetic machine politician. To be a rejected parliamentary candidate is a qualification which rarely fails in securing the desired position." A position of this kind must presently be filled in Montreal, at the new Protestant Hospital for the Insane, and the Montreal *Journal* very properly enters its protest against the appointment of any one who has not had a special training in psychiatry. That *Journal* also takes occasion to remind the medical profession that the insane of the Northwest Territories are housed, not in an asylum or hospital, but in the Manitoba Penitentiary. The duty of correcting this evil devolves in part upon the Canadian Medical Association, in that a strong statement of the case by that Association would, without doubt, impel the government to build an asylum in the Territories, or to have the insane intrusted to the Manitoba Asylum at Selkirk. This latter method was at one time satisfactorily employed, but the authorities of the two provinces could not continue in agreement as to the price that the one should pay the other for the board and treatment of their lunatics, and so those unfortunates were ordered to be lodged at a penal institution. Concerning the governmental system in the Province of Quebec, there is a steadfast adherence to the antiquated and pernicious system of hiring out the insane, and there is no prospect of a reformation during the present generation. The status of the popular ignorance and a corresponding lack of intelligence among the popular representatives maintain "the unrighteous method" in the same force and esteem as in generations that are past.

Sixty-one Years in Medical Practice.—The oldest living graduate of the Medical Department of the University of Pennsylvania is said to be Dr. I. L. Coffman, of Phoenixville, Pa., who has been practising medicine sixty-one years.

The Alumni of the Woman's Hospital of New York.—The annual meeting of the Alumni Association of the Woman's Hospital of New York, was held at the building of the Academy of Medicine on January 16th. Afterward, the Association was entertained at dinner at the Hotel Cambridge by Dr. B. McE. Emmet. Among the guests, not members of the Association, who were present, were Dr. Fordyce Barker, President of the Hospital Board; Dr. Keith, of Edinburgh, Scotland, and Dr. T. G. Thomas. The afternoon session was devoted to scientific work. In the evening, Dr. T. Addis Emmet gave a reception to the Association at his home.

The British Medical Association.—The fifty-eighth annual convention of the British Medical Association will be held at Birmingham, during the last week in August, under the presidency of Dr. Willoughby F. Wade, senior physician to the General Hospital of that city. The Town Hall, Queen's College, and Mason College have been secured for the purposes of the sessions. The local committee on entertainment have their plans already laid for numerous excursions, and the customary evening receptions and amusements for the members.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JANUARY 21 TO JANUARY 27, 1890.

SPENCER, WILLIAM G., *Captain and Assistant Surgeon* (Fort Bridger, Wyoming Territory).—Is hereby granted leave of absence for one month.—Par. 1, S. O. 4, *Department of the Platte*, January 20, 1890.

By direction of the Secretary of War, the extension of leave of absence granted CHARLES S. BLACK, *Captain and Assistant Surgeon*, in Special Order No. 1, *Department of the Platte*, January 1, 1890, is still further extended to include April 30, 1890.

The resignation of Charles S. Black, Captain and Assistant Surgeon, has been accepted by the President, to take effect April 30, 1890.—Par. 1, S. O. 18, A. G. O., January 22, 1890.

By direction of the President, the Army Retiring Board appointed by War Department Order dated January 8, 1890, from Headquarters of the Army, to meet at Los Angeles, California, will meet for the examination of LEONARD V. LORING, *Major and Surgeon*, at San Diego, California.—S. O. 18, A. G. O., January 22, 1890.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING JANUARY 25, 1890.

BERRYHILL, T. A., *Assistant Surgeon*.—Ordered to examination preliminary to promotion.

WENTWORTH, A. R., *Assistant Surgeon*.—Ordered to examination preliminary to promotion.

H THE MEDICAL NEWS will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.

Local papers containing reports or news items should be marked. Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

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